TECHNOLOGY DEPARTMENT

TELEPHONE ENGINEER and MANAGEMENT

LIBRARY
MAY 21 1948
DETROIT

MAY, 1948

Laguna Beach

California

Laguna Beach, colorful art colony on California's scenic Coast Highway, is a brief hour's drive south of metropolitan Los Angeles. Nature has painted a wonderful background in this sea-coast town for one of the sunny state's loveliest home communities. Cliffs and ocean, hills and arroyos blend into an exhilarating environment here for some of America's well known artists, writers, musicians and cinema stars.

An annual *"Festival of Arts"*, the *"Pageant of the Masters"*, concerts by the sea and year-round smaller art showings add constant intrigue to an already fascinating colony-resort-and-tourist spot.

Painting, writing, music, the theater — each as an art requires specialized skill and training. Telephone directory publishing, too, requires specialized skill and training. That's why Associated Telephone Company, Ltd serving the Laguna area, employs *General Telephone Directory Company* to publish its directories.

Attractive, well-planned directories are always a valuable asset to faster, better telephone service. Thus, in Laguna Beach as in more than 1000 other towns and cities with companies served by our specialized organization, such directories are ambassadors of good will.

Each company we serve is carefully studied so that we may develop the directory best suited to its individual requirements. Call on us for a complete *Directory Service Plan* to fit the needs of *YOUR* company. No obligation.

GENERAL TELEPHONE DIRECTORY COMPANY

Eastern Office:
185 North Wabash Avenue, Chicago 1, Illinois
Telephone: State 5478

Western Office:
Press-Telegram Bldg., Long Beach 12, California
Telephone: 6-7221

CITY HALL, LAWRENCE, MASS.
Monday Evening, May 28
THE MIRACLE
TELE P HONE
WONDERFUL
DISCOVERY
TELE P HONE
OF THE AGE
Prof. A. Graham Bell, assisted by Mr. Frederic A. Gower, will give an exhibition of his wonderful and miraculous discovery The Telephone, before the people of Lawrence as above, when Boston and Lawrence will be connected via the Western Union Telegraph and vocal and instrumental music and conversation will be transmitted a distance of 27 miles and received by the audience in the City Hall.
Prof. Bell will give an explanatory lecture with this marvellous exhibition.
Cards of Admission, 35 cents
Reserved Seats, 50 cents
Sale of seats at Stratton's will open at 9 o'clock.

71 YEARS AGO THIS MONTH

A new kind of magic was being featured

According to the handbill pictured above, "a wonderful and miraculous discovery, the Telephone," was to be demonstrated on the evening of May 28, 1877. Thomas A. Watson, the magician's helper, reports: "Bell would give the audience the commonplace parts of the show and then would come the thrillers of the evening —my shouts and songs . . .! 'Hold the Fort!' . . . 'Yankee Doodle' . . . 'Do Not Trust Him, Gentle Lady' . . . This repertoire always brought down the house." It would do that today.

These lectures aroused "intense and widespread interest," because only a very few telephones were then in use. But the public soon became aware of the great conveniences provided by the telephone, and its use during the succeeding years expanded fast and far.

"Fast and far" also well describes the vast expansion program under way today. For the telephone tradition of faithfulness and dependability takes form in constantly better service for more and more people.

In Exide Batteries you will find the same dependability for which telephone service is famous throughout the world. Since 1895, Exide Batteries have been proving themselves worthy of that trust.

Exide
BATTERIES

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • Exide Batteries of Canada, Limited, Toronto

IT SEEMS TO US

Our old friend LESTER THURSTON of the United Telephone Company, Harrisburg, Pennsylvania, promised to send us some fishing pictures for a coming issue. Les and a party of eight fishing cronies make an annual foray on Mr. Trout on the opening day of the fishing season in Pennsylvania.

• • •

. . . and wouldn't we all live longer and feel better if we would get out on some stream . . . take in a ball game or two . . . a bit of golf . . . or just go home and putter around in the garden more often than we do? The last several years have been most strenuous and many of us have forgotten how to play . . . or rest. Are you listening boss-man?

• • •

Overhead FOSTER LAMING, president of the Kansas Independent Telephone Association, calling his home while attending the Spring Conference at Chicago. Said Foster "I wish to talk to 'get your pencil' Tonganoxie, Kansas," he spelled it carefully. Yes, he had Tonganoxie in about two minutes . . . yet it took your editor 15 minutes to find it on the map. Smart people, telephone folks.

• • •

Fredonia (N.Y.) Chamber of Commerce recently gave a testimonial dinner honoring ARTHUR R. MAYTUM, general manager of the Dunkirk & Fredonia (N.Y.) Telephone Company. The occasion paid due tribute to Mr. Maytum for his year's of participation in the development and progress of the community. Mr. Maytum, who is 82 years young, could easily pass for 60 in action and appearance, has set a record of public service in Fredonia.

• • •

JACK HARTY of the Western Light & Telephone Co., Kansas City, spent a few uncomfortable moments after he unpacked his bags at the Edgewater Beach during the USITA Executives' Conference. Packed neatly on top of the shirts were two pair of rubber pants belonging to Jack's two-year old son Bobby. It seems that Jack's young son had decided to make the trip.

The National Telephone Magazine

TELEPHONE ENGINEER and MANAGEMENT

MAY, 1948 **VOL. 52, NUMBER 5**

Editor, RAY W. SMITH • *Advertising Director*, ROY F. SMITH
Managing Editor, JOHN G. REYNOLDS • *Promotion Manager*, DON C. SORENSON
Washington Bureau, ROLAND C. DAVIES *and* FRED HENCK
Circulation Mgr., BERNADINE STEPHENS • *Production Mgr.*, MARGARET INDIA

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COVER: Thanks to Commonwealth Telephone Company, Madison, Wisconsin for this month's cover photograph showing group of "linemen-to-be" putting into practice the things they have learned in the linemen's school.

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You Can't Put a Roof Over Your Outside Plant, but--

Copperweld Line Wire and Grip-Flex[38] Insulator Ties can make your outside plant just as permanent and safe as your inside plant. It's a fact!

The Copperweld Wire used in these products is permanently protected against corrosion. It is made by molten-welding a thick outer covering of copper to a core of strong alloy steel. Copperweld has the best conductance of any high-strength conductor. It also has better voice and high frequency transmission characteristics. It is stronger than copper wire or any other wire of comparable electrical properties. It is pliable—easy to handle—and because it lasts so much longer and requires so little maintenance it is unsurpassed for economy.

When you build your lines with Copperweld—you give them the strength of steel and the long life of copper. That's even better than putting a roof over your outside plant—and it's practical and economical.

Write for Engineering Data

COPPERWELD STEEL COMPANY, Glassport, Pa.

SALES OFFICES IN PRINCIPAL CITIES

GRIP-FLEX[38]
The Ideal Insulator Tie for use with Copperweld Line Wire

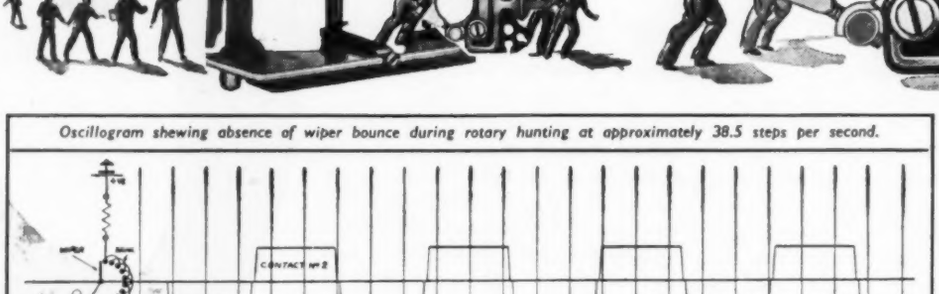
Copperweld NON-RUSTING LINE WIRE

SOLD BY LEADING DISTRIBUTORS

the STROWGER type 32A SELECTOR

(B.P.O. TYPE 2000)

Oscillogram shewing absence of wiper bounce during rotary hunting at approximately 38.5 steps per second.



This is another example of the skilful design which makes the Strowger type 32A selector pre-eminent.

Although the wiper is so small a unit a great deal of research and development work has gone into the making of it. This is not surprising when one considers the very exacting nature of the work the wiper has to perform.

Telephone engineers will appreciate that correct pressure on the bank contact is essential and in the present design this is achieved by adjusting the tip gap only. A fibre collar links the two blades together so that they float up and down as a pair, thereby equalising the pressure on upper and lower tips. This collar also eliminates bounce during rotation of the selector as is shown on the typical oscillogram reproduced above.

Another important feature is the amount of vertical flexibility which results from the design of the wiper. Variation of contact pressure is therefore slight with inaccuracies of alignment to the contact bank levels. Excessive vibration of the tips during vertical stepping is checked by the rigid central insulator; consequently, very little pause is needed between the vertical and rotary actions.

STROWGER TELECOMMUNICATIONS

fulfil the requirements of all communities—from the smallest to the largest

AUTOMATIC TELEPHONE & ELECTRIC CO. LTD.,
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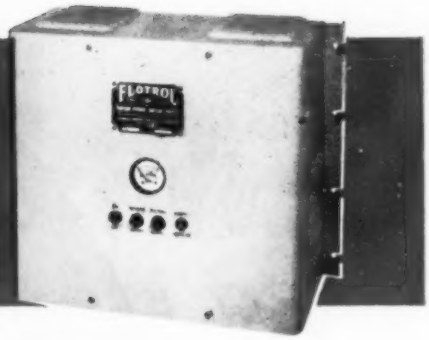
NORFOLK HOUSE, NORFOLK ST., LONDON, W.C.2
Strowger Works, Liverpool, 7, England

A7171-B2

FLOTROL –

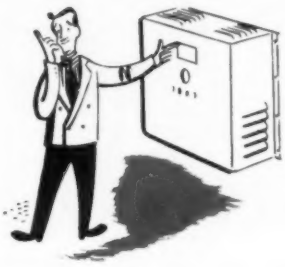
THE ALL-NEW BATTERY CHARGER OFFERS THESE OUTSTANDING ADVANTAGES:



* economy

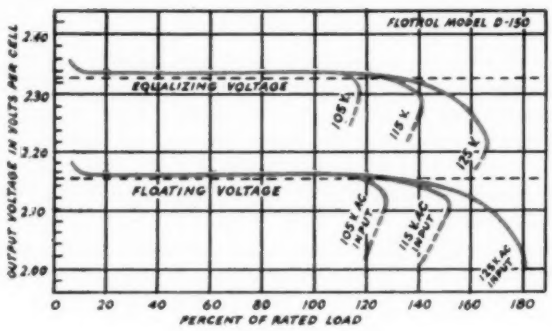
Flotrol can save up to 20% per year on power costs! Here's a service unit that will pay for itself in an average of five years. Flotrol earns while it saves.

* reliability



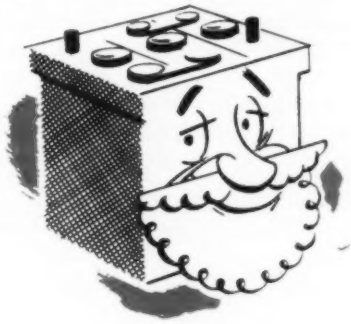
Flotrol has no moving parts! Its unique design eliminates all expendables such as vacuum tubes, motors, etc. Mechanical failures that disrupt service are taboo with Flotrol.

* voltage regulation

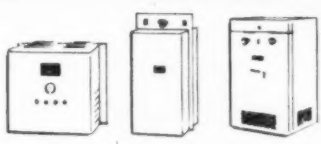


Flotrol keeps your battery fully charged at all times—plus that, Flotrol responds instantaneously to load requirements. Your battery actually never knows the work of normal operation. The current demand is supplied by the Flotrol charger while your battery rests.

* long battery life



Flotrol keeps your battery in tip-top condition through accurate floating voltage. Your battery sleeps while Flotrol does the work—Flotrol guarantees your battery a full life span.



Flotrol, the all-new battery charger, is available in single phase models from 1-ampere, 24-volts, through 24-amperes, 50-volts, and in 3-phase models in 25, 50, 75 and 100-amperes, 50-volt ratings. Flotrol is small, silent and completely dependable. Investigate Flotrol today. Write for your free copy of Bulletin 137.

ASK YOUR DISTRIBUTOR ABOUT FLOTROL

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PARTNERS IN DEPENDABILITY

SUB-CYCLE

LORAIN PRODUCTS CORPORATION • DEPT. 3 • 1122 F ST., LORAIN, OHIO

DECIMALS TO SPECIFY LEGAL MILK

OR TO MAKE WOOD PRESERVATION SURE

IN MOST AMERICAN CITIES it's against the law to sell milk that doesn't meet certain butterfat and bacteria-count standards as determined by laboratory checks. By this means, the public makes sure of the food values for which it pays and on which proper nourishment of our children depends.

You can assure your investment in wood preservation just as accurately and just about as easily as the Board of Health inspects milk every day. Simply specify a preservative with known and tested characteristics which cannot vary because the preservative is a chemically defined substance, recognized by proper laboratory procedures.

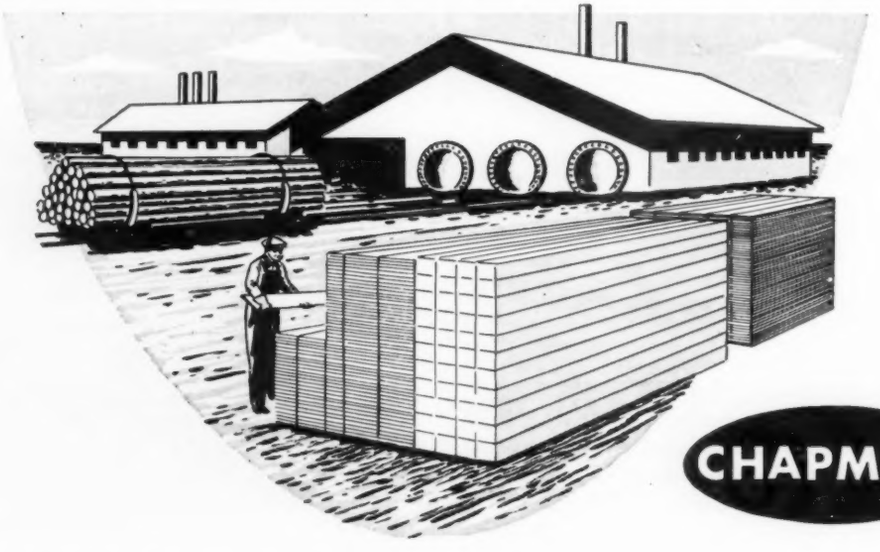
Chapman Penta Preservative is exactly that. Its active ingredient is pentachlorophenol, which the chemist can identify and measure. It is the same today as it was yesterday or years ago when the first exposure tests were begun. The Penta you buy tomorrow will produce exactly the same results as Penta of any previous year because it is forever the same identical substance.

Your treating plant has always been able to check and make sure of adequate penetration. With Chapman Penta Preservative, treaters can be equally sure of adequate toxicity. Treated wood is clean; men never object to handling or working with it. Cost is no greater—sometimes it is less—than commonly used treatments not affording these advantages.

Specify Chapman Penta Preservative on your next order for poles, timber or lumber. Or, if you want more facts and figures, write or wire for the full story.

CHAPMAN PENTA PRESERVATIVE

containing pentachlorophenol, product of The Dow Chemical Company



CHAPMAN

CHAPMAN CHEMICAL COMPANY ★ 333 North Michigan Avenue, Chicago 1, Illinois

NEWSLETTER
TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*

ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

NEWSLETTERS *on Alternate Weeks*

May 15, 1948

Dear Sir:

Montgomery (Ala.) County Circuit Judge Walter B. Jones, on Apr. 26, granted appeal of Southern Bell for institution of its full proposed rate schedule pending final decision on case. Decision recognized basic privilege of interim emergency telephone rate adjustments under bond -- that company is protected against continuing losses if its rates later are increased, & that users are safeguarded against paying higher charges than those ultimately authorized through bonding agreement. Decision grants Southern Bell increase of approx. $2 million per year. Alabama commission had granted $360,000 of company's $2,530,000 request.

Judge Jones' ruling backs up other state regulatory bodies who have recognized value of granting companies temporary relief through interim orders. With economic conditions changing so rapidly, rates considered favorable when filed, can prove inadequate before proceedings can be closed.

* * *

REA recently advanced through its various state coops, proposals for reduction in size of neutral conductor on new multi-grounded wye-type power line construction. Iowa Independent Tel. Assn. in appearance before Iowa State Commerce Commission stated that proposed rule was objectionable from standpoint of Independent telephone companies. B. C. Burden, technical consultant, Lincoln, Neb., presented testimony that reduction in conductivity of neutral power conductor would cause larger amount of power current (including harmonics) to flow through earth, thereby increasing inductive influences of power line & noise tendency in paralleling telephone circuits. Case is now under advisement. Lead taken by Iowa Association is important; points up fact that other state associations should be on alert for proposals to change existing commission rules which may adversely affect either safety features or inductive influence of power lines. Complete story on newest REA development scheduled for June 1, FORTNIGHTLY TELEPHONE ENGINEER.

* * *

In line with national policy of decentralization of strategic manufacturing industries, Western Electric Co. has definitely arranged purchase of 130-acre industrial site for construction of telephone set & associated equipment manufacturing plant in Indianapolis. New plant will take over production of telephone sets & associated equipment which are being manufactured at present in leased quarters principally in Chicago area.

* * *

General Tel. Corp. on Apr. 23 acquired control of Northern Indiana Tel. Co. & Commonwealth Tel. Corp. - both Indiana corporations - through acquisition of majority of common stock of two companies from

estate of late Carl H. Mote. Northern Indiana Tel. Co. serves about 6,300 company-owned telephones in 16 communities; Commonwealth Tel. Corp., serves about 3,400 company-owned stations in 15 towns. Operations of two companies will be conducted from Lafayette, Ind., under direction of L. F. Shepherd, East Central group mgr. of General Tel. System, who has been elected pres. & gen. mgr. of both companies.

* * *

Providing welcome contrast to marketing results obtained for other utility debt offerings in past month, investment demand for new Southwestern Bell Telephone debentures May 4 proved more than sufficient to absorb $100,000,000 issue. Offered on 3.01% yield basis, loan, which represented largest corporate underwriting of year to date, was reported entirely placed within matter of minutes following award & subscription books were closed before noon.

Offering yield was substantially below initial returns carried by other three Bell System loans marketed since first of year. Earlier operations & remarketing yields included New York Tel. 3⅛s, 3.05%; Pacific Tel. & Tel. 3⅛s, 3.108, and Mountain States Tel. & Tel. 3⅛s, 3.08.

Southwestern Bell issue, together with other new projected debenture & mortgage bond issues by Bell System companies, will account for relatively large proportion of total debt financing in utility field during next few months. Proposed issues include Illinois Bell, slated to be in market about June 2 with $60 million mortgage bonds; New York Tel. Co., with sale of $90 million mortgage bonds about July 1, & New Jersey Bell, slated to offer $55 million debenture issue shortly thereafter.

* * *

This issue of TELEPHONE ENGINEER AND MANAGEMENT is packed with "must" reading for all telephone men. We particularly recommend, "Changing Concepts of Valuation For Rate Making," by Arthur E. Nelson (page 30); "Adequate Earnings As The Key To Efficient Service," by R. A. Gantt (page 33); "Coordinated Construction," by E. H. Danner (page 35); "Putting Your House In Order Before Applying For Rate Adjustments," by Merle M. Hale (page 42).

* * *

Highlights: Wisconsin Tel. Co. has requested authority to purchase three Independent companies - Freedom Mutual Tel. Co., Apple Creek Farmers Tel. Co., & 12 Corners & Mackville Tel. Co....Illinois Central Tel. Co. completed new circuit installation between Benton & Ewing, Ill. ...Southwestern States Tel. Co., has awarded contract for new building to house new $305,000 automatic system at Kilgore, Texas.

Busy convention season continues: Wisconsin Independents meet May 19-20, Park Hotel, Madison....Kansas Association meets May 19-20, Jayhawk Hotel, Topeka....New York Association meets May 26-27, Seneca Hotel, Rochester.

Ray Smith

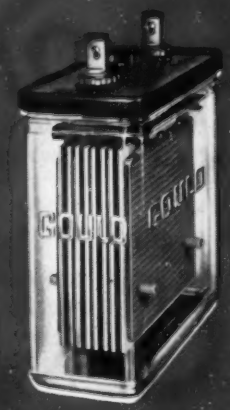
Ray W. Smith, Editor

Only GOULD Has It!

In the Gould Research Laboratory, a Cathode-Ray Oscillograph is being used for the first time in the battery industry. It gives voltage readings in one millionth of a second.

A complete research laboratory with pilot manufacturing plant where advance-design batteries are constantly created—and proved before production.

Only Gould has such a concentration of research equipment for the improvement of storage battery design. The Cathode-Ray Oscillograph is just one example. It provides information, hitherto unavailable, on battery performance under surges and instantaneous loads. It delivers data that is leading to the first true balance between grid design and active material—that means dollars to you in dependability and extra life. Research like this gives you better batteries first from GOULD—FOR FIFTY YEARS THE CHOICE OF ENGINEERS.



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The Aristocrat of Stationary Batteries!

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STORAGE BATTERY CORPORATION

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Always Use Gould Automobile and Truck Batteries

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S.A.T.A.P.

Since 1937, Autelco Mediterranea S.A.T.A.P. has provided Italy's public service administrations with unsurpassed telephone instruments, central-office equipment, wires and cables, and railway signaling equipment of the highest grade.

To its own production, engineering and service facilities, Autelco Mediterranea adds the entire facilities and resources of International AUTOMATIC ELECTRIC Corporation, for the solution of any problem encountered in providing telephone communications.

Wherever you may be, this same complete service is offered to you. Look to International AUTOMATIC ELECTRIC Corporation for the products and services of an organization which is world-wide in scope, with broad experience in every phase of telephone operations.

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Designed for Distinction

SHERRON ACOUSTIC

STAINLESS STEEL OR MONEL "35"

plus GENERAL ELECTRIC TEXTOLITE PLASTIC PANELS

The jewel-like brightness and enduring beauty of Sherron's Stainless Steel or Monel "35" Telephone Booth are now heightened by General Electric TEXTOLITE Plastic Panels. Decorative, scratch-and-shock resistant, TEXTOLITE gives further accent to the easy maintenance and lasting newness of the Sherron Booth. The "noise eliminator" construction of the Sherron Booth literally channels outside sounds into a unique noise-eliminating "cushion." Sherron Acoustic Booths are available not only in Stainless Steel or Monel "35" but also in Furniture Steel.

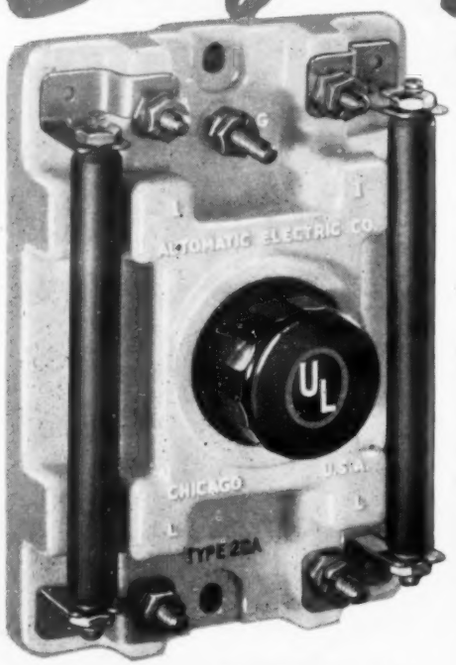
SHERRON METALLIC CORPORATION

1201 FLUSHING AVENUE • BROOKLYN 6 • NEW YORK

Safety Assured!

with AUTOMATIC'S Type 20A Indoor Protector

(LISTED BY UNDERWITERS' LABORATORIES)



Cat. No. SB-88—Type 20A Protector with 7 amp. fiber fuses. Other fuses can be supplied on order.
(Above protector can also be supplied with cover for outdoor installation.)

You're protected for sure when you install this sturdy indoor protector. Heavy, one-piece porcelain base has barrier walls between discharge blocks and fuses and terminals providing a wide margin of dielectric strength. Carbon-to-carbon discharge surfaces are very accurately spaced—give proper protection without excessive maintenance. For sure protection, order Automatic's Type 20A Protector.

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . . Electrical Engineers, Designers and Consultants
Distributors in U. S. and Possessions
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INVEST YOUR "PIN MONEY" IN THE BEST

LOCUST PINS

Locust wood is practically impervious to decay and is impenetrable to moisture. Because of its close-grained hardness locust can be machined into strong, long lasting pins of standard specifications that can be counted on to retain their size and shape.

OAK BRACKETS

Oak pole brackets of unquestioned quality are in demand now as never before in the face of the qualifications necessary in the equipment and materials needed today to "keep 'em talking." Present day maintenance and repair have every reason to demand and get only the best.

GLASS INSULATORS

Research and experiment have produced in Hemingray insulators a glass insulator that is better than any ever before offered.

Non-porous, non-deteriorating, uniform coefficient of expansion and high mechanical as well as high dielectric strength are some of the many qualities that rank Hemingray the "best on the line."

BUCKEYE TELEPHONE and SUPPLY CO.
COLUMBUS 6, OHIO

for TELEPHONE CORD QUALITY

ECONOMY AND SERVICE

Conductors in Commercial Cords are made of six tinsel threads twisted together over a 10-3 ply cotton thread. This assures long life and noise-free conductivity. Each conductor is also insulated to give maximum protection against moisture.

It's such quality construction that is making so many independent telephone companies exclusive users of Commercial Cords. Try them next time you order.

Commercial Cord
AND SUPPLY COMPANY, INC.
26 East Main Street
Clifton Springs, N. Y.

*Order by Code Number or Submit Sample

Making telephone conversations "a matter of record!"

Making important telephone conversations "a matter of record" is as essential to business as is the use of written correspondence, office communications, contracts, and agreements.

Thousands of firms now using SoundScriber for streamlining dictation methods welcome its capacity for recording their telephone conversations as well. SoundScriber, therefore, fulfills the needs of business for a *complete system* capable of handling all types of office communications with equal ease.

The clarity of SoundScriber recording and reproduction is produced by *embossing* the sound-groove, *electronically*, upon a light-weight, indestructible Vinylite disc revolving on a hard-surface turntable. The disc provides convenience and flexibility in use . . . may be routed, filed or mailed . . . as required. Because they are *permanent*, the discs often require no transcribing.

And, SoundScriber is the *only system* capable of duplicating recorded discs right at the user's desk when the subject-matter is of a confidential nature, and copies are required for others concerned.

SoundScriber, proved by the *experience test*, now serves thousands of telephone subscribers efficiently, dependably and economically. In telephone recording the SoundScriber system meets the demands of telephone companies for quality performance, dependability and convenience with low cost maintenance.

SOUNDSCRIBER Trade Mark

ELECTRONIC DICTATING AND RECORDING EQUIPMENT

Product of THE SOUNDSCRIBER CORPORATION
New Haven, Connecticut

You Name It--We Have It!

Whether you operate dial, manual or magneto service—Kellogg has the exact telephone you need! All are designed on proven, sound engineering principles for better transmission, reception, and greater dependability. These important benefits result in greater satisfaction and extra earnings for you. And the simple design and trouble-free operation of Kellogg telephones holds down your maintenance and operating costs.

Every telephone, every component you buy from Kellogg has been proven by service with hundreds of Independent telephone companies, backed by Kellogg's guarantee of quality.

Get complete information from your Kellogg representative *today*. He'll be glad to help you! Or write us direct.

KELLOGG MASTERPHONES

THE TELEPHONE THAT'S YEARS AHEAD

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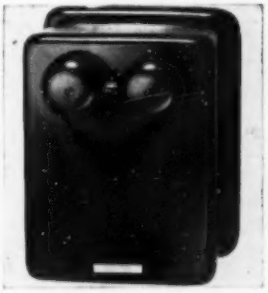

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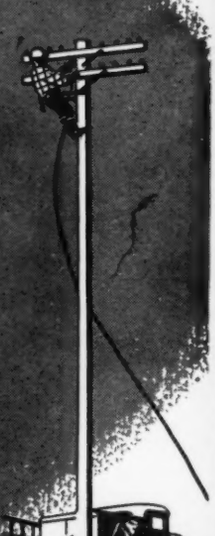

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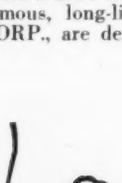

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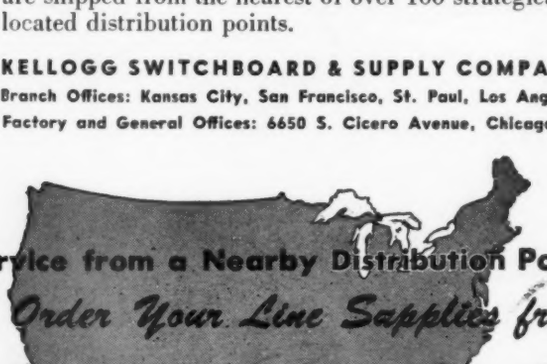

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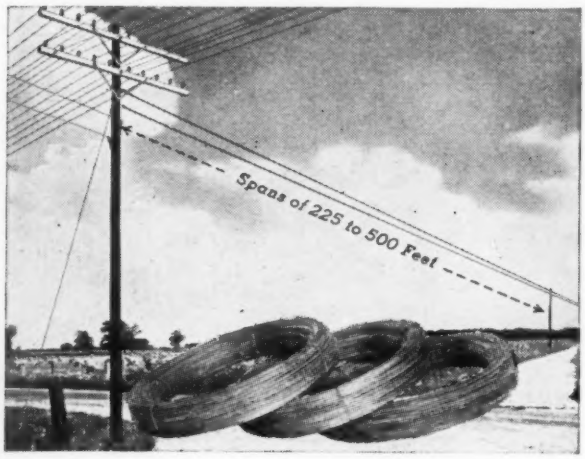

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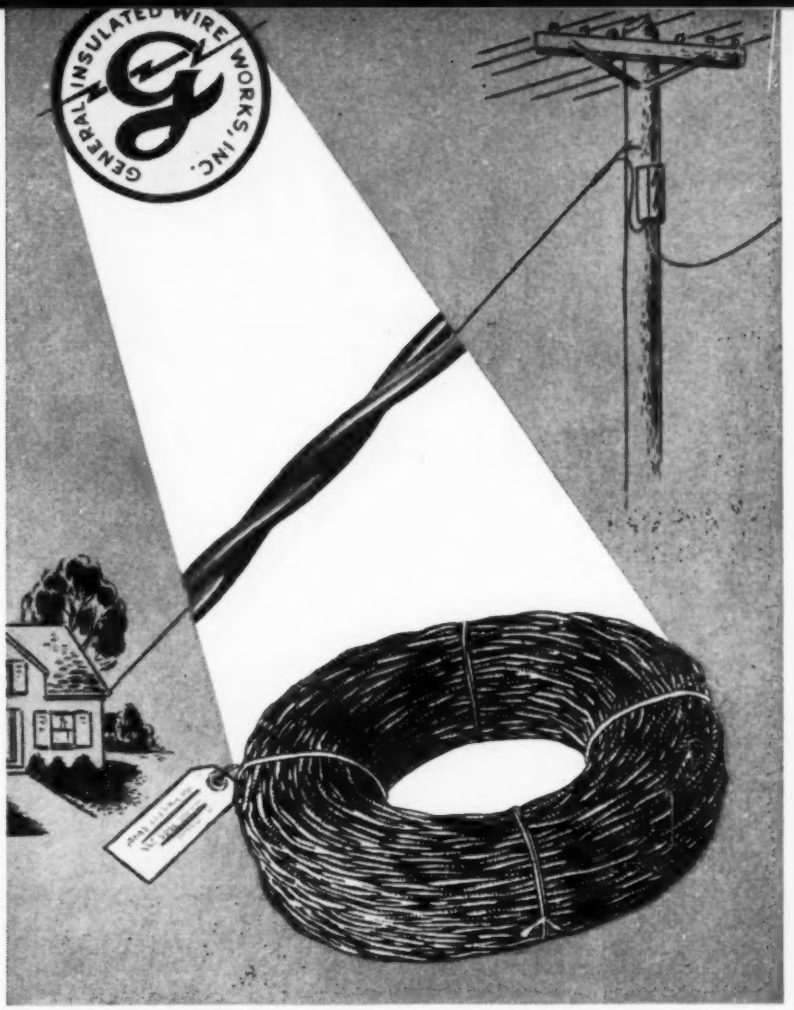

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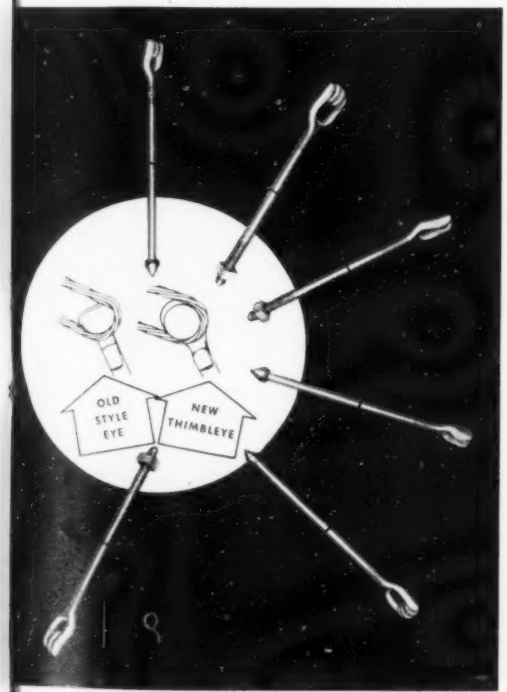

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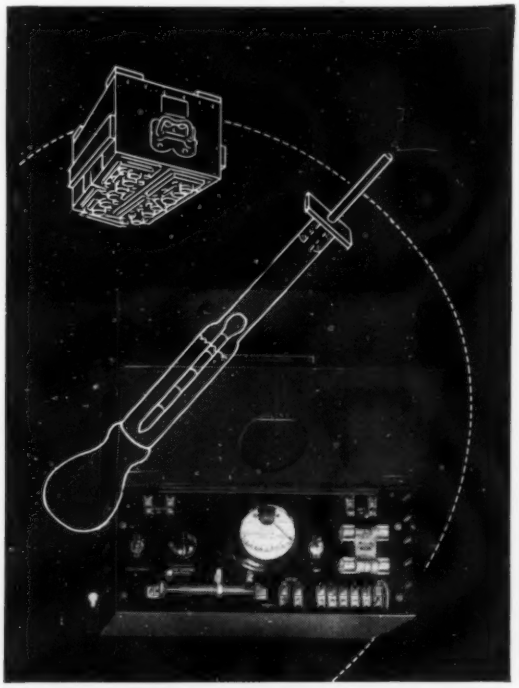

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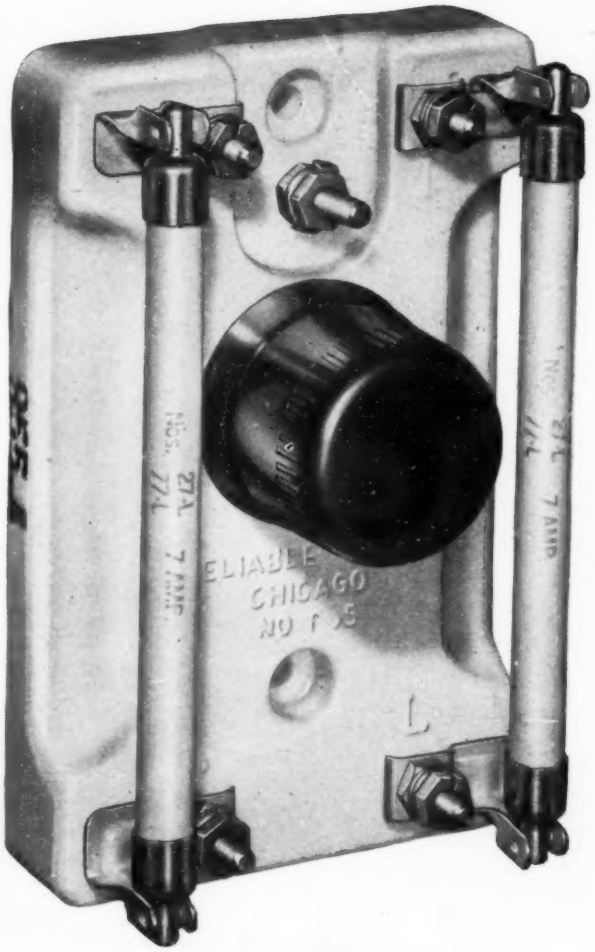

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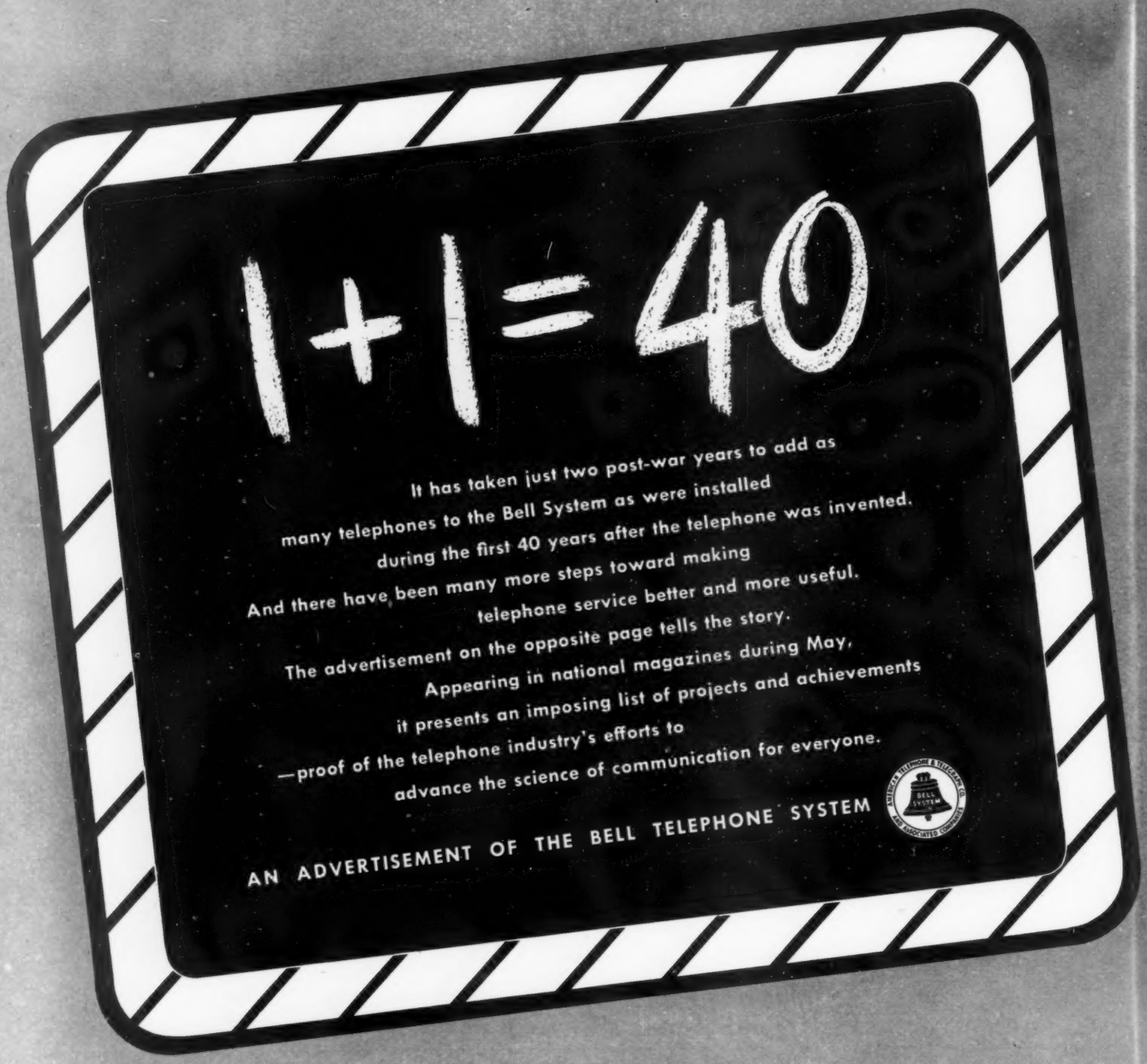
1+1=40
It has taken just two post-war years to add as
many telephones to the Bell System as were installed
during the first 40 years after the telephone was invented.
And there have been many more steps toward making
telephone service better and more useful.
The advertisement on the opposite page tells the story.
Appearing in national magazines during May,
it presents an imposing list of projects and achievements
—proof of the telephone industry's efforts to
advance the science of communication for everyone.
AN ADVERTISEMENT OF THE BELL TELEPHONE SYSTEM

40 Years Growth in 2 Years

THE telephone was forty years old before there were six million Bell telephones in this country. Now there are twenty-nine million. The last six million have been added since these little tots were born—in about two years instead of forty.

But growth is not the only measure of the increased value of your telephone service. Many new developments are extending its scope and usefulness.

There is the extension of telephone service to automobiles, trucks, busses, boats, trains and airplanes.

There is the $200,000,000 program to extend and improve service in rural areas. Today there are 50% more rural telephones than when the war ended.

Then there is coaxial cable, no thicker than your wrist, which can carry 1800 Long Distance calls at one time. And along with it is a new system for transmitting telephone conversations by super-high-frequency radio waves. Both are designed so they can be used for Television as well as Long Distance calls.

And research on new electronic devices, now under way in Bell Telephone Laboratories, brings still wider horizons of electrical communication within view.

It's all a part of progress and our constant effort to make telephone service better and more useful for every telephone user.

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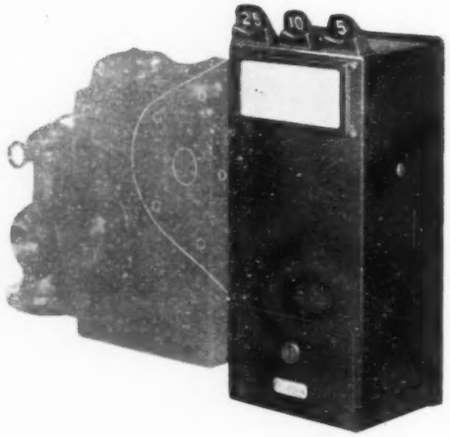
Find out for yourself how paystations will pay—for YOU. Install these "attachment-type" paystations with telephone instruments you already have. They require no special equipment at the central office. Their only cost is the cost of the paystations themselves—soon absorbed by extra cash earnings.

Paystations give you no billing problems, no uncertainty about accounts receivable. Paystation earnings represent immediate extra cash. Order Type 11 or Type 23-J paystations or let us tell you about other types to suit your needs.

Type 23-J post-pay shelf-mounting paystation has cradle hook and wiring for connecting modern handset, thus providing a paystation unit which may be used with any standard ringer box containing induction coil, condensers and other essential components.



Type 11 paystation for wall-mounting telephone. Designed for use with central-battery automatic or manual wall set of the hand receiver type. The unit has a metal mounting plate which extends behind the instrument and conducts the coin signals to the transmitter.

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EDITORIAL

Look Out, FCC!

A telephone friend of ours has opined to us that the Federal Communications Commission is, in his opinion, getting itself into a fix.

The Commission, he points out, has recently asked telephone companies to tell it what they are doing to prevent listening in on party lines and extension telephones. Our friend thinks this question quite proper, and he has no criticism of the motives that impelled it. His position is, however, that he doesn't want to be the fellow who has to put the bell on the cat.

"I'll give you an illustration," he said. "Take the case of Grandma Brashear. She lives with her son's family; they've got a telephone on one of our farm party lines, where we've got code ringing."

"Grandma Brashear is about 80 years old, she weighs about 98 pounds, and she can and is perfectly willing to lick anything that walks. She paddled me plenty of times when I was a kid."

"Now, for years the most fun Grandma has had is sitting in a rocking chair right under the telephone, and listening in on that party line. All the subscribers know she does it, and nobody complains."

"Now, if somebody has got to tell Grandma Brashear that she can't listen in on that party line any more, I want that somebody to be one of these F.C.C. Commissioners. And, believe me, I'm going to be over in the next county the day it's done."

Of course, no telephone company officially sanctions the practice of listening in on party lines. Most companies discourage the practice as much as they can, not only because they cannot properly sanction it, but also because it impairs the quality of transmission and is likely to cause trouble in other ways. Further, because of the coming of radio and rural free delivery of newspapers, and for other reasons, the custom has been greatly reduced from what it was in years gone by. There are holdovers, of course—the Grandma Brashears—but generally, in these times, people are not nearly as much interested as they once were, in what is going on over the party line.

More modern types of service are also contributing to the decline of this long-time custom, so that it is not nearly as prevalent now as it was in the earlier days of the telephone, when the party line telephone was about the only way of getting news on the farm.

It is doubtful if there is much that any telephone company can properly do, more than most of them are doing now, to prevent such use of party line telephones. It is also doubtful if it would be practical for telephone companies to attempt to do more—the cure, whatever it was, would probably be worse than the disease.

As to extension telephones, the telephone company generally expects the subscriber to police his extension just as he would his main line telephone. Both are usually on the subscriber's own premises, with access to them only by his own knowledge or consent.

But, as to listening in on party lines, we agree with our telephone friend. On behalf of the telephone industry, our feeling is that if somebody must tell the Grandma Brashears and others who listen on party lines, that they can't do it anymore, we'd much prefer that the F.C.C. take on the job.

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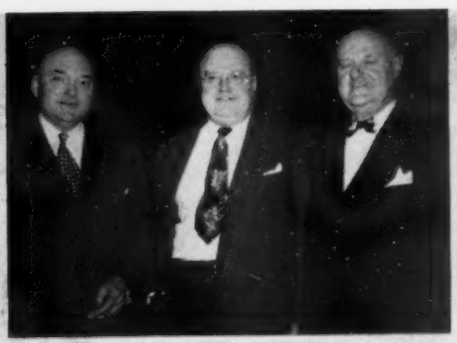
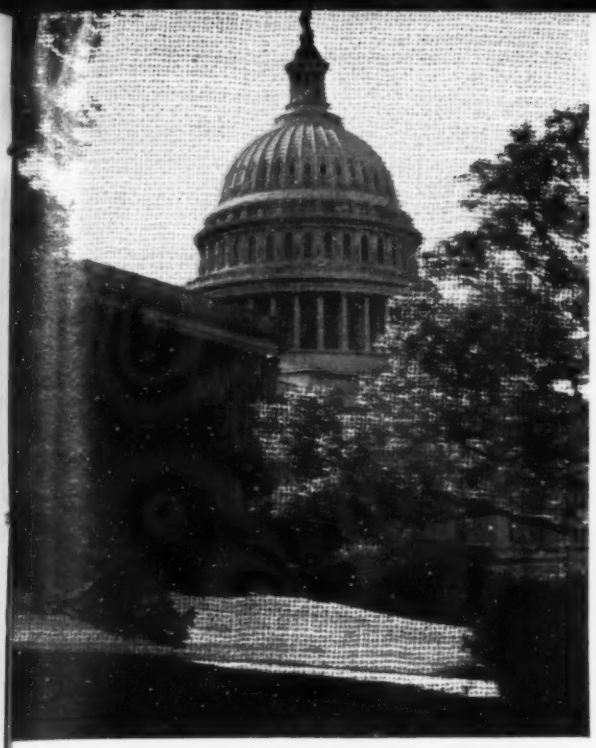




Telephone
ENGINEER and MANAGEMENT
THE NATIONAL TELEPHONE MAGAZINE

WASHINGTON
Bureau REPORTS

BY ROLAND DAVIES and FRED HENCK

TELEPHONE COMPANIES have definite interest in expanding television field . . . Carl M. Ostby and Wm. F. Miller represent Independents at hearings on Fair Labor Standards Act . . . Durr leaves FCC.

TE&M Camera was busy at recent USITA Executives' Conference. Photos on opposite page and on page 33 prove that Conference was thoroughly enjoyed by the 444 registrants.

Television

APPARENTLY the time is almost at hand when telephone companies will have to start thinking about television in the present tense, and not as something of tremendous potentialities in the distant future, where the video art remained for a decade and a half.

Thus far, television's phenomenal growth has been confined almost entirely to the large metropolitan areas, but there are a number of good reasons why a new phase, a spread to the medium-sized and smaller cities and towns, appears to be in the offing.

For one thing, the FCC—which since the war has had a frequency allocation problem similar to trying to put a gallon of water in a quart bottle—now has many more applicants than it has available channels for most of the big cities. But, as Chairman Wayne Coy recently emphasized in an address before the Institute of Radio Engineers, channels allocated to the medium and small cities and towns are still generally wide open. They're the only places where new television station applicants can go, with any reasonable assurance of obtaining Commission authorization.

Secondly, television's nature requires that in order to be economically feasible, particularly outside of Metropolitan communities, the broadcaster must have network and film programming available to offset the high cost of locally-produced shows. The difficulties and delays in those areas are a lot closer to being ironed out now.

Obviously, too, increased production experience and competition is making itself felt more and more in boosting manufacturing capacity for video station equipment and receivers and bringing down the cost of those items. Radio manufacturers report literal amazement at the demand for television receivers, and reports of stepped-up production come weekly. Within a comparatively short time, apparently, a prospective television station operator will be able to lay his plans with the assurance that the people in his service area will be able to obtain receivers, and at costs somewhat comparable to standard broadcast sets.

At any rate, the FCC hearing starting June 15 on the television network service rates of the American Telephone & Telegraph Co. and the Western Union Telegraph Co. will be watched closely, as video networks are the next major requirement for the spread of the industry. Since the Bell System's local channel and short haul rates also are involved, the Commission's approach to the reasonableness of the charges and television service rate-making will be all-important in the field.

The Commission, in scheduling the hearing, flatly rejected the plea of the Television Broadcasters Association that the A. T. & T. and Western Union rates be suspended pending the outcome. The FCC did not comment on the proposal of TBA that it consider the establishment of a television relay service as separate and distinct from other existing common carrier services. That, of course, will be a major issue at the hearings, along with such items as the TBA charge that the A. T. & T. rates represent a lot of development costs which should be applied to telephone service.

Impact On Independents Stressed At FLSA Hearing

AT HEARINGS before a Senate Labor and Public Welfare subcommittee on two bills to amend the Fair Labor Standards (wage-hour) Act, the Senators were given graphic pictures of the impact both of a boost in the statutory wage floor and the

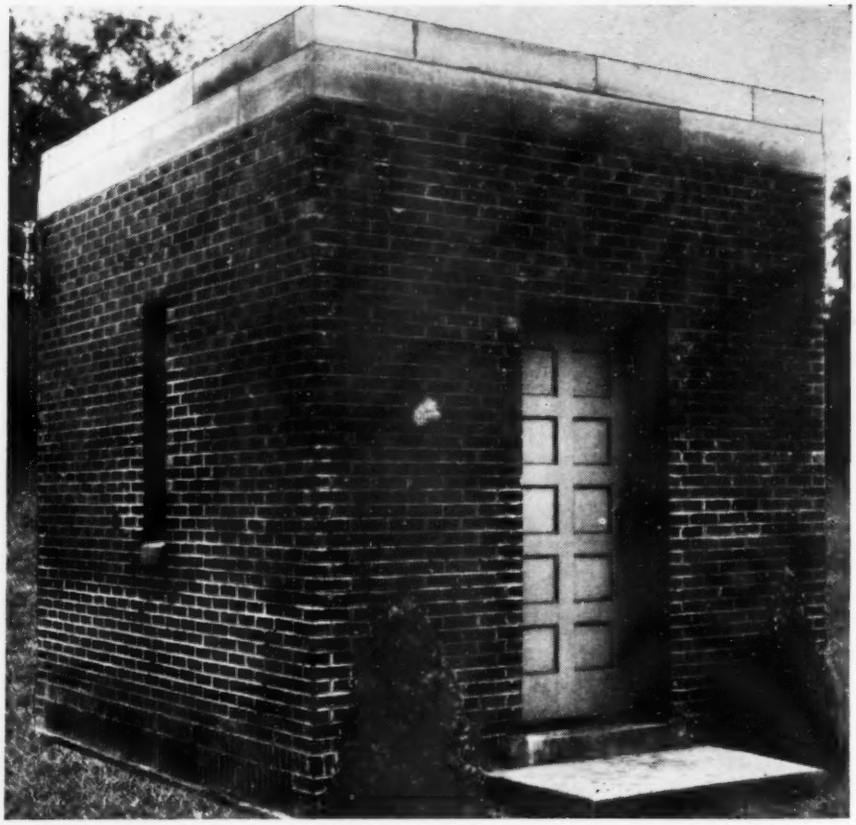
(*Please turn to page* 39)

Changing Concepts Of VALUATION For RATE MAKING

By
ARTHUR E. NELSON
Former U. S. Senator (Minn.)

FOR MANY YEARS it has been a recognized rule of law that legislative bodies in the United States have the power to regulate public utilities rates. There is, however, nothing more uncertain today than the legal concepts of evaluation for rate making by Public Utilities Commissions.

The first important decision, recognizing the right of legislative bodies to regulate public utility rates, was handed down by the Supreme Court of the United States in 1877 in *Munn v. Illinois* (94 *US* 113) *in which the* Court found that under its *police* power the state, through its legislature, had the authority to fix and determine rates and charges of businesses affected with a public interest. The court said: "*We know that this is a power which may be abused; but that is no argument against its existence. For protection against abuses by legislatures the people must resort to polls, not to the courts*". In other words, it was held that the courts had no jurisdiction to set aside, or even to consider, an order by legislative bodies fixing and determining rates for service of any business affected with a public interest, including public utilities.



"With constantly rising prices, it is probable that many utility companies now have wholly inadequate reserves to provide (at present prices) for the replacement of property worn out in the service of the public."

THE NEXT IMPORTANT case relating to regulation of public utilities was that of *Smyth v. Ames* (169 *US* 466) decided by the Supreme Court of the United States in 1898. In that case the court effectively over-ruled the conception of rate making set forth in *Munn v. Illinois*.

The court said: "*We hold, however, that the basis of all calculations as to the reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property being used by it for the convenience of the public. And in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration, and are to be given such weight as may be just and right in each case. . . . What the company is entitled to ask is a fair return upon the value of that which it employs for the public convenience*".

The public utilities commissions and the courts, generally, followed *Smyth v. Ames* until the U. S. Supreme Court in 1942 handed down its decision in *Natural Gas Pipeline Company Of America, et al v. Federal Power Commission et al*—42 *Pur* (*NS*) 129, in which the court said: "*The Constitution does not bind rate-making bodies to the service of any single formula or combination of formulas. Agencies to whom this legislative power has been delegated are free, within the ambit of their statutory authority, to make the pragmatic adjustments which may be called for by particular circum-*

stances. Once a fair hearing has been given, proper finding made and other statutory requirements satisfied, the courts cannot intervene in the absence of a clear showing that the limits of due process have been overstepped. If the commission's order, as applied to the facts before it and viewed in its entirety, produces no arbitrary result, our inquiry is at an end."

FOLLOWING THIS case it was only natural that the Supreme Court should go further in questioning the doctrine of rate-making laid down in *Smyth v. Ames* in the case of *Federal Power Commission et al v. Hope Natural Gas Company*, decided in January 1944, 51 *PUR (NS)* 193. In that case the court said:

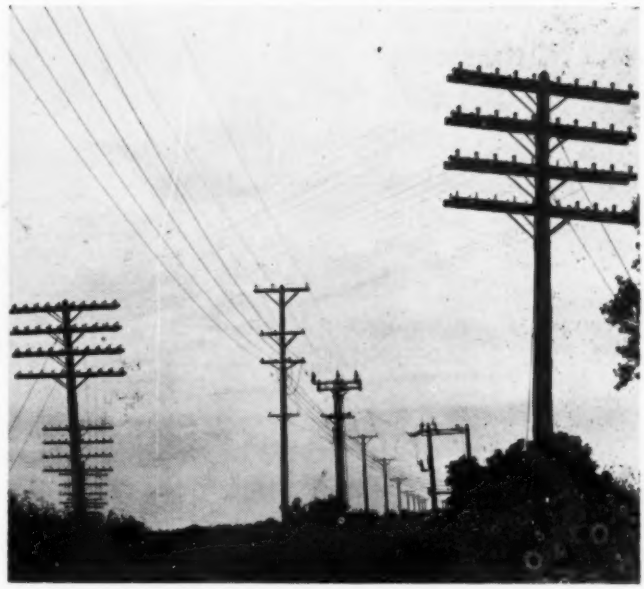
"From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. . . . By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. . . . . Nor is it important to this case to determine the various permissible ways in which any rate base on which the return is computed might be arrived at.

"For we are of the view that the end result in this case cannot be condemned under the act as unjust and unreasonable from the investor or company viewpoint".

The court thus determined that it was the *end result* arrived at by public utility commissions in regulating rates of utilities that was the determining consideration rather than the methods used to arrive at that result. It appears from this case that the Supreme Court would not set aside action by a public utilities commission regulating rates unless the *end result* was so bad as to "*shock the conscience of the court*".

It was also natural that following the decision in the *Hope Natural Gas* case, which appeared to give Commissions power, carte blanche, in determining rates for utilities, that some commission would endeavor to fix rates without regard to a fair return on the fair value of the property of the utility. The Wisconsin Commission in the case of *City Of Two Rivers v. Commonwealth Telephone Company* (70 *PUR (NS)* 5) on August 5, 1947 specifically refused to fix a "*fair value*" or indicate the basis for a "*fair return*". The commission said: "*Accordingly, there will be a determination and finding of neither a rate base nor of a rate of return for the purposes of this proceeding*". The commission quoted, with approval, the old case of *Munn v. Illinois*. The circle of regulation of public utilities rates thus, in a period of 70 years, was back to the point at which it effectively started in the United States.

"It is regrettable that many of the Independent telephone companies, particularly the smaller ones, hesitate to ask for a value upon their properties which is fair and reasonable and hesitate to ask for a fair return upon such value."



THE COMPANY appealed the Two Rivers Case to the Circuit Court of Dane County, Wisconsin, and in an exceedingly interesting and somewhat vitriolic manner, Judge Alvin C. Reis who, himself, had once been chief counsel for the Wisconsin Commission, handed down a decision setting aside the order of the commission, holding that it was the duty of the commission in fixing "*just and reasonable rates*" to find a fair value of the utility's property and to find a fair return thereon.

It appears that the commission's decision in the Two Rivers case in Wisconsin reached the new low in the scale of rate regulation by public utilities commissions so far as the protection of the investor or company interest is concerned. The Circuit Court of Dane County, Wisconsin, raised the hopes of public utility investors that their interest in utilities may be protected in the future. That case is now before the Supreme Court of Wisconsin and it is hoped that the Court will follow Judge Reis's able decision.

The most disturbing development in rate regulation over the past several years has been the tendency on the part of some Commissions to take the "*easy*" way of fixing values for rate-making purposes by deducting the depreciation reserve from the original cost. The Bell operating companies, in recent applications for increases in rates, have quite universally presented evidence showing the so-called net investment cost and have asked a return upon the basis of value.

In each instance, however, the Bell companies, in such applications, have set forth the fact that this method of fixing values is not used with the idea that the result represents the fair value of the property but is presented only for the purpose of obtaining emergency relief. Unfortunately, some of the Independent companies have filed applications for authority to increase rates based upon the same theory, that is, original cost less the depreciation reserve, but have not protected themselves by claiming a permanent fair value based upon consideration of original cost undepreciated and reproduction cost new, depreciated.

All Public Utilities Commissions have not been hoodwinked by the fine-spun theories in the *Hope Natural Gas* case, but many continue to recognize fair value as a basis for rate making and follow the theory that reproduction cost new depreciated, as well as original cost undepreciated are elements to be taken into consideration in fixing such fair value.

In *Peoples Natural Gas Company v. Pennsylvania Public Utilities Commission*, the Pennsylvania Superior Court in November 1943, in referring to the fixing of fair value for rate-making purposes by deducting the depreciation reserve from original cost, said as follows:

"This method has no place and is entitled to no consideration in the determination of value. This depreciation reserve is nothing more than

a bookkeeping figure. It is not represented by cash or investments in bonds and stocks. It represents the total of the sums which annually the managers of appellant thought should be set up on the books to replace property which would be retired in the future. And the only effect of this accounting procedure was to make the portion of appellant's earnings thus set aside unavailable for dividends or for additions to surplus. And the funds thus withheld from the stockholders have been re-invested in property used in serving the public."

The Virginia Supreme Court of Appeals in a case involving the *Chesapeake and Potomac Telephone Company* (69 *PUR(NS)* 161), decided in January, 1948, said as follows: "*Obviously any reasonable figure for the present fair value of the company's plant and property will be higher than the original cost less depreciation.*"

THE ILLINOIS Commerce Commission, in an application for increase in rates filed by the *Illinois Central Telephone Company, Case No.* 35424, in November of last year fixed a value for ratemaking purposes substantially in excess of the original cost *undepreciated*, taking into consideration both present day reproduction cost new depreciated, and original cost undepreciated, and adding thereto an allowance for cash working capital, materials and supplies and going concern value.

The commission rejected the theory followed by some commissions over the past several years that fair value should be determined by deducting the depreciation reserve from the original cost or that such method could be considered in determining such fair value.

The Illinois Commerce Commission, on application of *Illinois Commercial Telephone Company* for authority to increase its rates, Case No. 33702, in January of this year followed its decision in the *Illinois Central Telephone Company* case making a finding of value in excess of the original cost undepreciated, together with allowance for cash working capital, materials and supplies and going concern value, taking into consideration present day reproduction cost new depreciated, and allowing a 5½% return.

The Minnesota Railroad and Warehouse Commission, acting upon an application of *Fairmont Telephone Company* for an increase in rates, *Case No. M*-2902, entered an order,

ARTHUR E. NELSON, former U. S. Senator (Minn.) and present member of the Illinois and Minnesota Bar.

also last November, finding a value of the property of that company, by deducting the depreciation reserve from the original cost and adding thereto an allowance for cash working capital, materials and supplies and going concern value.

The company filed a petition for re-argument and after such re-argument the commission, in January of this year, reversed its original order and, in fact, reversed the theory it had followed for a period of two or three years, and fixed a value in excess of the original cost undepreciated, taking into consideration present day reproduction cost new depreciated. The result of this reversal increased the value of the company's property for rate making purposes by 80% above the amount originally determined by deducting the depreciation reserve from the original cost.

IN VIEW OF the tendency on the part of some of the public utilities commissions to fix a fair value only on the basis of the original cost less the depreciation reserve, I have made a survey of the Annual Reports of all of the Independent telephone companies for the year 1946 in the states of Minnesota, Wisconsin, Michigan and Nebraska, to ascertain just what the result might be if such method were universally used as a basis for rate-making.

In Minnesota the reports showed, upon that basis, i.e. deducting the depreciation reserve from the original cost, a value per company-owned station of from $0.00 to $218.00. It showed a rate of return from zero to 715%. The investigation further showed that in 1946, 62 of the 233 Independent telephone companies in that state operated in the red.

The investigation in Wisconsin showed a value per company-owned station, on the same basis, of from *minus* $9.00 in one case where the depreciation reserve *exceeded* the original cost to $94. The rate of return on that basis varied from zero to 68%. The investigation showed further that 47 of the 175 companies operating in the state of Wisconsin were in the red during the year 1946.

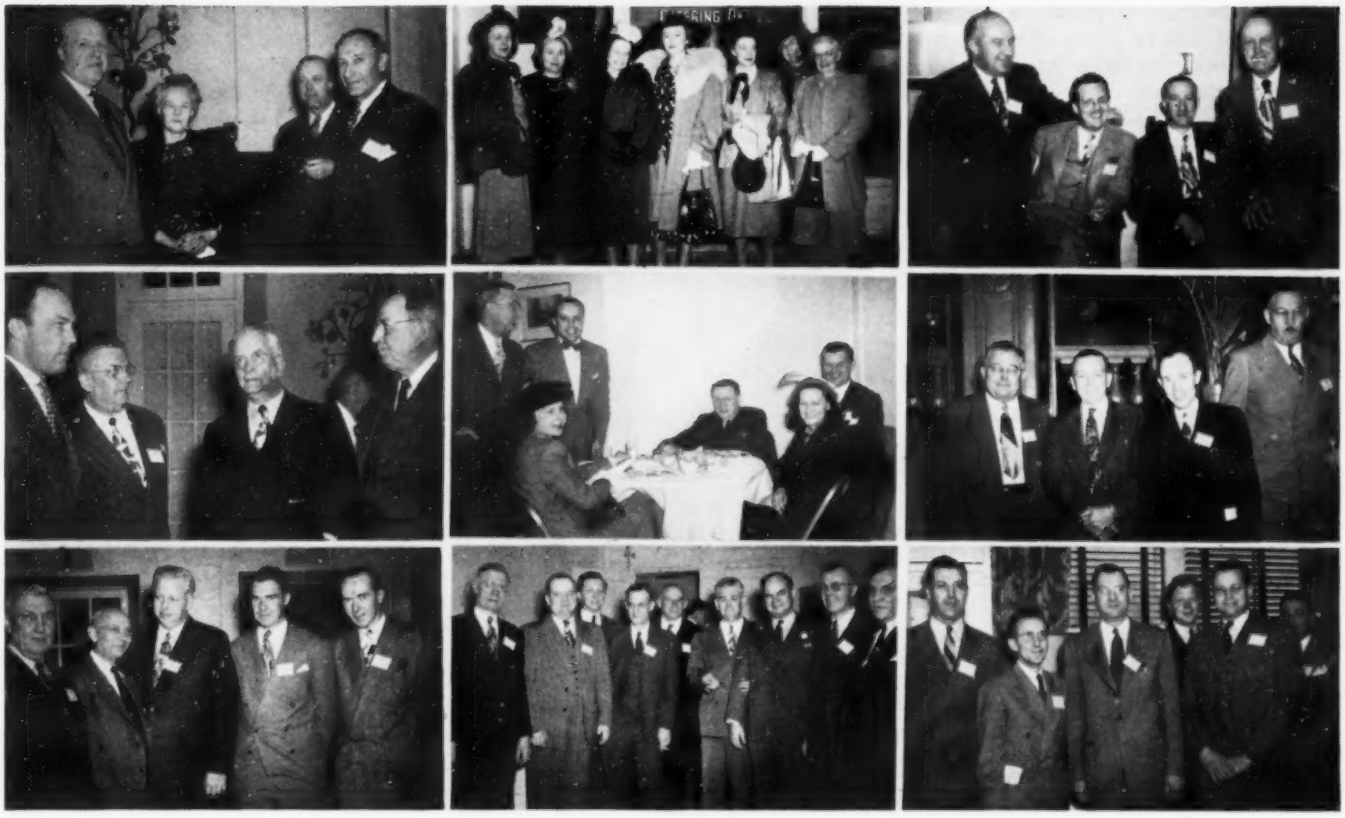
In the state of Michigan, investigation showed a value per company-owned station, based upon original cost less depreciation reserve, from *minus* $6.00 where the depreciation reserve exceeded the original cost, to $136. The same investigation showed a rate of return, based upon the depreciated original cost, of from zero to 276%. Of the 133 companies operating in Michigan, excluding roadside companies, 36 operated in the red for the year 1946.

A similar investigation of the returns of Independent telephone companies in the state of Nebraska for the year 1946 showed a value per company-owned station, based upon the original cost less the depreciation reserve, of from *minus* $83.00 in one case where the depreciation reserve *exceeded* the original cost, to $138.00. The rate of return on the same basis varied from zero to 60.5%. It is interesting to note that one company showed a plant value of $5,907 with a depreciation reserve of $14,912, showing a depreciated book value *in the red* of $9,005. 21 companies of the 102 companies operating in Nebraska were in the red for the year 1946.

IN THE CASES cited above, either or both the original cost and/or the depreciation reserve may have been understated or overstated on the books of the company. An arbitrary adjustment in the book cost or depreciation reserve, made by either a commission or the management, will not bring the result to a fair conclusion. Only by an engineering study can the true original cost be determined. On the other hand, only a lengthy and exhaustive study of the depreciation reserve, not arbitrary action, can determine a reasonably correct amount for such reserve.

Obviously attempting to determine value for rate making purposes by deducting the depreciation reserve

(*Please turn to page* 58)



Above photos were taken by the TE&M Camera during recent USITA Executives' Conference

Adequate Earnings As The Key To Efficient Service

By

ROBERT A. GANTT

Vice President,
International T&T Corp.,
New York City

THERE IS NOT a more worn—or a more important—subject for discussion in the telephone industry today than "adequate earnings." We talk about this subject so much because it is vital to our continued existence. And yet, the final decision is seldom ours to make. More and more, we are dependent upon public regulatory commissions, whom we must convince that our cause is just. This requires surveys, analyses, reports, maps, charts, graphs, and every other form of statistical presentation, both oral and written. I mention this not to complain about it—one does not complain that water is wet—but to explain why it is worth your time and mine to consider again the problem of adequate earnings.

The United States Independent Telephone Association is not going to solve this problem for itself by simply undertaking a campaign of public relations, however wisely planned or long maintained. Nevertheless, a vigorous, intelligent, and continuing presentation of the vital part played by the Independent telephone industry in the life of our nation will help the public to view our cause more favorably. What can be done along this line has been fully demonstrated by the Bell System.

There are other important things about our Independent telephone industry which the public either has never known or has forgotten. The fact that every fifth telephone in the United States is independently operated is impressive; even more impressive is the fact that the almost 7,000,000 telephones included in this fifth exceed the total for France and Great Britain combined.

Geographically, the position of the Independent telephone industry in the United States is even stronger. Over 6,400 companies, most of them locally owned, and over 60,000 rural lines, most of them owned by farmers' mutuals, operate the telephones in two-thirds of our great country. Historically, it is a fact that local capital and initiative created the Independent telephone industry to serve this vast region, precisely because it was being denied the boon of telephone service in favor of more remunerative urban areas.

The Independent telephone indus-

try in the United States is as vital in war as it is in peace. The dangers of concentration in an age of sudden devastation from the air need not be stressed. Neither is it necessary to enlarge upon the military importance of telephone communication. We of the United States Independent Telephone Association, by helping to give our country the best possible telephone service in peacetime, have helped to prepare it for emergencies in wartime.

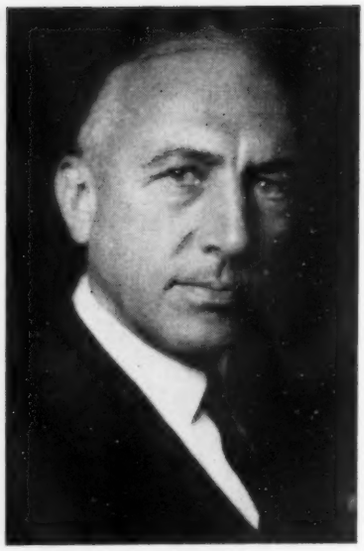
It is along such lines as these that we should tell our story—briefly, forcefully, and continuously. Only when the public is convinced that we are necessary to its welfare will it listen favorably to our pleas for adequate earnings. Even then, our case must be well founded and carefully documented. We must be very certain that our house is in order before we invite a public regulatory commission to appraise it. The same is true when we request permission to expand the premises—or raise the rent.

Magnitude of the Job Ahead

WE ARE ON STRONG ground when we point to the gigantic task of rehabilitation and expansion inherited from the war and not yet nearly completed. Backlogs of unfilled orders, years of minimum maintenance, and programs of expansion long deferred require the investment of staggering sums.

The dollar size of this job may be illustrated by the General Telephone Corporation, which operates approximately one million telephones. This company recently announced a construction budget for 1948 totalling approximately 50 million dollars. On this basis, the financial requirements of the entire independent telephone industry for the current year alone would be well over three hundred million dollars.

The problem of securing funds of this magnitude would be considerable quite apart from the complications introduced by state regulatory commissions. Some of these bodies are extremely exacting in their controls, fixing limits of debt, of preferred and common stocks, and even the minimum price for new financing and the maximum rate on preferred stock. We recently witnessed a case of one of the larger companies before one of the state regulatory commissions, where the commission fixed the price so high and the dividend rate so low that there was not a single bid offered by any of the financial or brokerage houses. This was an exceptional case, no doubt. Nevertheless, it illustrates the fact that, today, financing is difficult even for companies that are old, established, and relatively large.



ROBERT A. GARETT, vice president International Telephone and Telegraph Corp., New York City.

Smaller companies within the Independent telephone industry find the going rougher still. As you know, U.S.I.T.A. classifies its more than 6,400 member companies as A, B, and C. Class C companies are those with less than $50,000 of yearly revenue. Although small in total revenue and number of stations served, and although operating for the most part in sparsely settled communities, the Class C companies perform services which are, nevertheless, vital to their customers.

Because companies of this sort are usually small in size and thin in profits, they find it more difficult than do their larger associates to finance essential operations. Capt. Henry, president of U.S.I.T.A. in 1946, spoke upon this subject to the Chicago convention in October of that year. I cannot improve on what he said; but, I should like to point out that, unless the Class C companies are able to meet their financial requirements, the Independent Telephone Association stand to lose a substantial number of its members and, with them, no small part of its justification in the eyes of the public. I would suggest that you put preservation of the Class C companies high on your agenda of items for action.

Increased Costs of Material, Equipment, Labor

IT IS INDEED an old story that we tell, when we turn to the subject of increased costs of material, equipment, and labor. However, much as we should like to ignore the subject, we may not do so: it meets us wherever we turn. A recent publication of the Pennsylvania Telephone Corporation, issued to commemorate its 50th anniversary, points out that telephone service in the early days was obviously out of line with other living costs. The book goes on to say:

> *A business telephone cost* $75 *a year—in some cases as much as a third of the office rent. Few families could afford the luxury of a residence telephone at* $48 *a year in an age when a six-room flat was advertised at* $7.50 *a month; the local papers complained that the city needed more houses renting for* $10 *a month; when corsets sold for* 50 *cents; Japanese silk ties for* 10 *cents; and a local department store marked down ladies fur-trimmed coats from* $11.75 *to* $3.75 *at the end of the winter season.*

Nowadays, conditions are reversed: the telephone industry is struggling desperately to operate with a rate-structure far lower than the general price level.

The telephone operating companies are caught in a seemingly endless chain of increasing costs. Unlike the dealer in eggs and butter—or even the manufacturer of telephone equipment—these companies cannot pass costs on to the public without approval by public regulatory commissions. This is a laborious, time-consuming process. To draw up an application for increased rates is no mean task, in itself. But this is not all. The regulatory bodies have other problems to deal with, and hearings must be set at their convenience. Not infrequently, these hearings go on for months before a decision is reached and an order handed down. There is no guarantee that the order will be favorable. But, even if it is, the goodwill that may be lost by bringing the subject into the public arena will be difficult to regain. This is why the telephone industry has sought by every means within its power to avoid going to the regulatory commissions with an appeal for higher rates.

Technology and Management

THE TELEPHONE industry has been able to avoid a general increase of rates for more than twenty years, notwithstanding the fact that nearly every other sector of our national economy has shown rocketing prices, meanwhile. Credit

(*Please turn to page* 54)

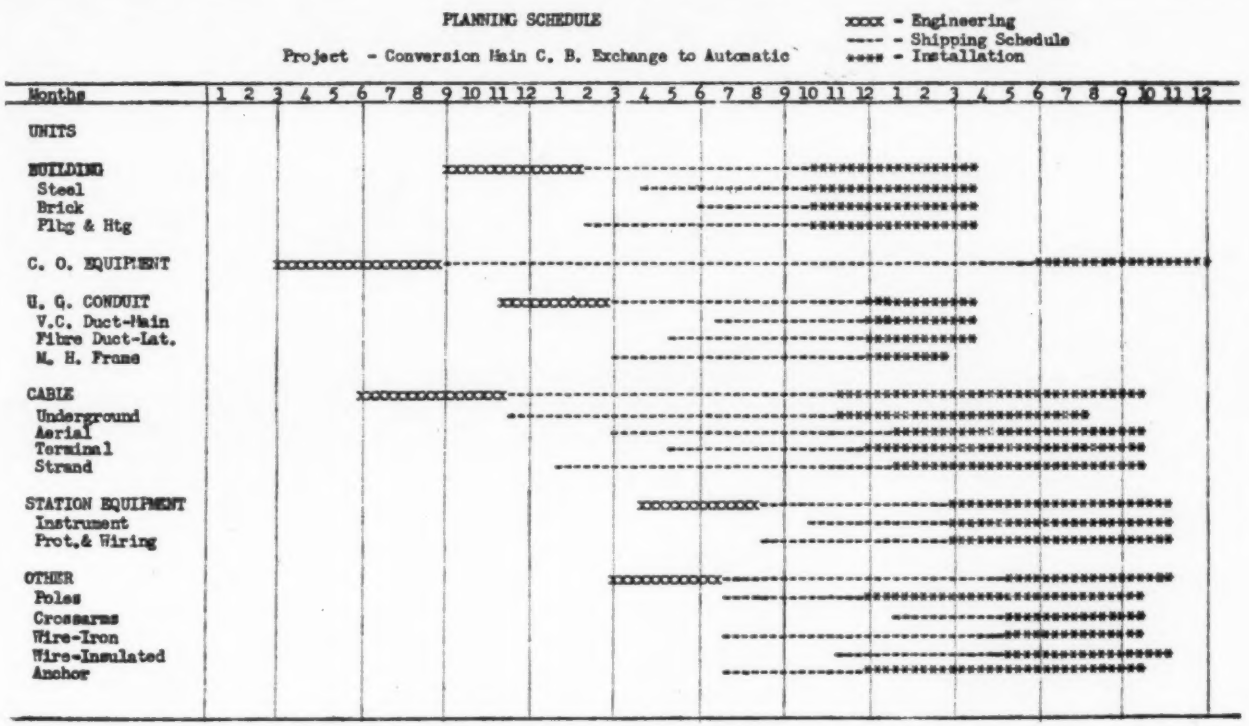


Table I—Sample of suggested planning schedule that will aid in coordinating the construction program. Detail of the schedule will be determined by the size of the project.

The Coordinated Construction Program

Correct planning of the construction program permits an orderly coordination of efforts by all departments of the company.

By E. H. Danner

Pres., Texas Telephone Co.

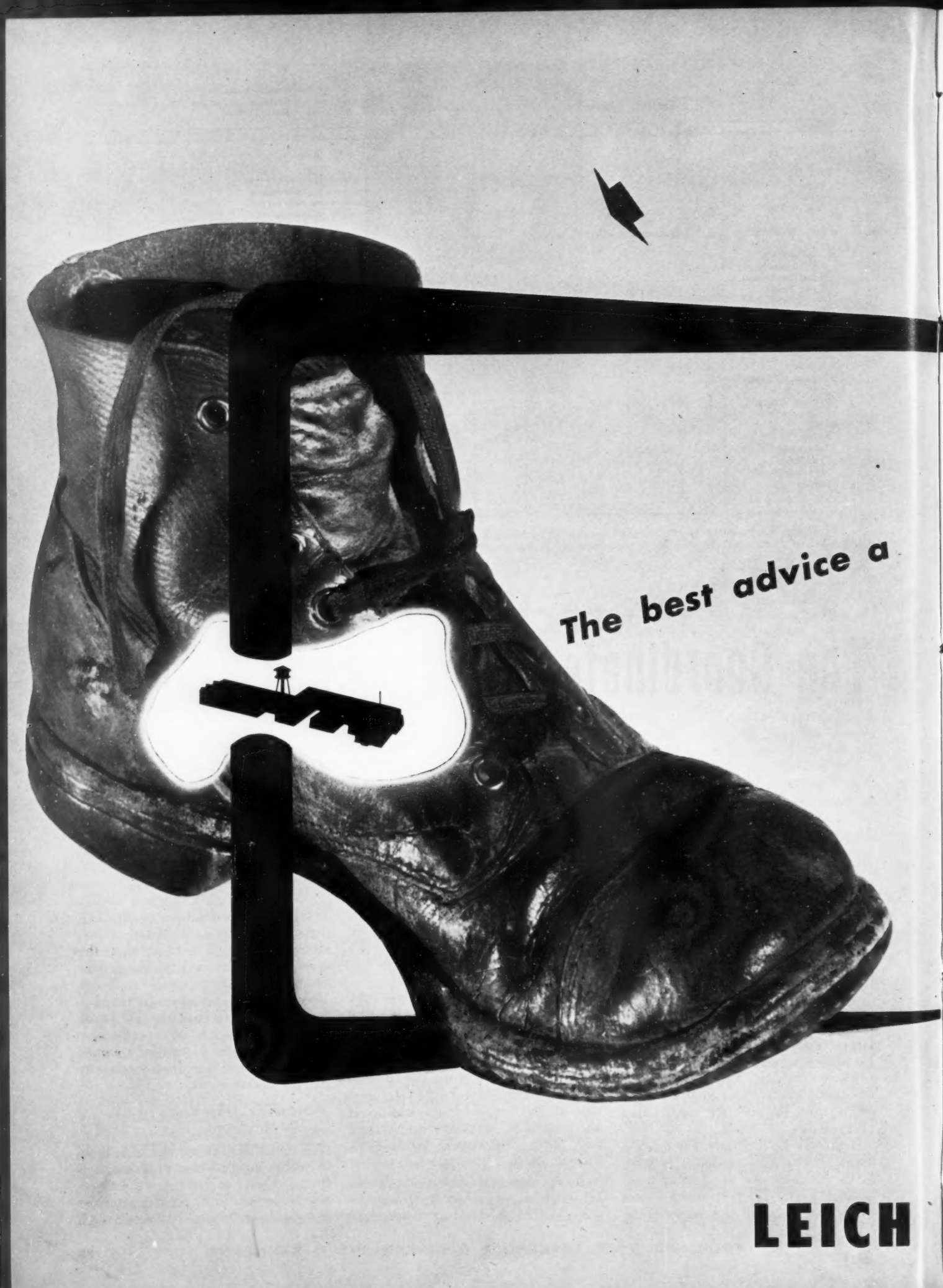
WEBSTER DEFINES coordination as "*the ability to bring into common action*". All of us have heard the expression, "*he certainly has fine coordination*", used in describing some outstanding athlete. Generally such individual is neither the tallest, nor the strongest, nor the largest man on the team but due to his ability to coordinate the physical resources which he does possess under the guidance of an alert mind he is able to give an outstanding performance.

You may be thinking that this example can have no particular relation to the business we are in but I believe it has. An alert management using the physical and material resources available can achieve an outstanding performance by the use of a minimum quantity of the physical plant units, manpower and other material resources which we use in the telephone industry if the use of such are coordinated or brought into common action to provide the additional and improved service required and with it the subsequent increase in revenue or reduction in expense.

In my first consideration of this subject I approached it from the viewpoint of the local or "*within the company*" coordination of the construction program. More sober thought made it evident that this viewpoint had to be broadened to include our manufacturers and suppliers. Finally, being in the management end of the business and recalling the definition of coordination as "*the ability to bring into common action*" I found it again necessary to lift my sights.

Determine Objectives To Be Achieved

IN ORDER TO achieve a coordinated construction program it is first necessary to determine the objective to be achieved, second, consider the resources required to attain such


The best advice a
LEICH

customer ever gave us . . .

He wasn't meaning to tell us how to run our business. This good customer was merely talking about his telephone company when he said: "Put yourself in my shoes . . . what would you do if you were I?" Thinking it over later, we decided that this was excellent advice. And, the more we thought about it, the more we decided that we here at Leich have always tried to do that very thing.

Certainly, we are putting ourselves in the telephone man's shoes when we refuse to handle anything but the finest quality tools and supply materials. We know that inferior materials cause more trouble than they're worth.

You should see this Leich outfit a couple days after a sleet storm. There's almost as much excitement in our office as there is in the storm areas. We know how badly and how quickly the wire, tools, hardware, etc., are needed and all of us wholeheartedly try to do what we can to help the telephone companies repair the storm damage.

Even in the design of our own equipment, and Leich has been making telephone equipment for over forty years now, we try to put ourselves in the telephone man's shoes. Leich was the first to introduce a modern Bakelite magneto handset. The new Leich common battery telephone, which is both a wall and desk model, is something telephone men have been wanting and needing for a long time. Our new dial system has already been acclaimed as the most simplified, easiest-to-understand and economical-to-operate dial switchboard ever offered the industry. If you can forgive our bragging a little, wouldn't this seem like we took the trouble to find out what a practical, down-to-earth telephone man really needed?

Orders from telephone companies, large and small, are the nicest things that can happen to us. We try to handle these orders as efficiently and intelligently as possible. We figure that telephone men have enough to do and worry about. Anything we can do to help erase some of their worries, or to help them do a better job easier, is the right way to put ourselves in their shoes—is good for everybody concerned. Leich Sales Corporation, 427 West Randolph Street, Chicago 6, Illinois.

MANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907

objective and then select the method or procedure to be followed. Briefly stated, I believe our objective is to provide at the lowest possible cost and within a reasonable period of time the facilities required to meet the demand for new, additional and improved service. In achieving this objective we will require the resources of money, material, equipment and manpower. The method or procedure selected to achieve the objective must necessarily be directed toward the use of the minimum quantities of such resources in the most effective and efficient manner.

Demands for new and additional service fall naturally into the two classifications of local exchange and toll service. Such demands should be measured by the yardsticks of Where and Why. That is, where is the greatest demand and why does it exist? Most of our larger outside plant extensions are required to provide service to newly developed areas.

Good operation requires that before plans are made to provide service in these areas that we consider the value of the homes in the area, the type of construction, whether the homes are rental units or owned, some idea of the income of the occupants, their type of employment, the possible development of a community business center and other related characteristics.

If the development is beyond the present city limits a check with the city officials may reveal the possibility of annexation in the immediate future. In one of our exchanges we have a new residential development consisting of several blocks of fairly well constructed homes presently occupied by the owners or managers of business establishments or the department heads of such businesses. The majority of these homes are owned by the occupants but a further check revealed that a considerable number of such home owners also owned lots in a better residential area on which they intend to build as soon as costs are reasonable.

In other words, a heavy demand for single line service is now experienced in an area which upon the return to more normal conditions may become a party line development area with the demand for single line service being shifted elsewhere.

Consider Demands for Additional Service

THE REASON for the demand for additional service is equally important as where such service is demanded. Is it because of new industries the expansion of existing industries or just that the income level of the community is higher and telephone service can still be purchased in the community at pre-war rates? No doubt many of the demands for service will fade when rates are increased to their proper level.

E. H. DANNER, president of the Texas Telephone Company, Sherman, urged USITA Executives' Conference to plan construction program at least three years in advance.

The same two queries of Where and Why should be applied when analyzing toll service demands. Does the increase come from business or residential subscribers? Is it because of one or two industries in the community or a general increase? Because of the movement of industry to decentralize there are instances where a village is transformed practically overnight to an industrial metropolis with the immediate demand for a large increase in both toll and local service facilities.

Regardless of what the analysis of the increase in toll service may reveal we still are obligated to provide the service but the methods which we use in providing such service will be governed by the facts so determined. If the exchanging experiencing such growth is along a main toll route any investment in providing additional circuits on a permanent basis is reasonably safe but if the exchange is on a feeder toll route and the increased demand for toll service does not appear too stable then an expenditure for providing permanent toll facilities by means of additional poles, arms and wire demands careful scrutiny. Investment in poles, wire and cable must be a relatively permanent investment if it is to be economically advantageous as it costs nearly as much to salvage idle plant as it does to construct it. The provision of toll facilities through the use of carrier provides a more flexible arrangement and if properly engineered can be shifted to meet changing demands. Further its installation requires a comparatively small amount of manpower.

"Healthy Demand" Comes At Inopportune Time

NOW WE COME to that famous expression "*improved service*". During the war years many people accumulated more money than ever before because they could not buy certain household furnishings, appliances, clothes and many items during the period of high income. Since then they have been buying new cars, new radios, new stoves and the "*new look*" and regardless of the quality of the present telephone service provided they want a new telephone, new equipment and building and a new grade of service.

I believe we will agree that such is a "*healthy*" demand but that it comes at an inopportune time. Many of the same subscribers who are now demanding such improved service gave us a very cool reception when we tried to sell them such service before the war period. Construction projects dealing with the matter of service improvement should be evaluated by determining if it will increase revenue, reduce maintenance, reduce labor requirements or permit more efficient use of existing equipment and facilities.

As an example, the addition of toll circuits to provide adequate capacity will improve the toll service and at the same time increase revenue because of an increase in the percent completion of calls offered and will reduce subsequent attempts and thus permit the operator to handle more calls to completion without increasing the work load.

Manufacturers and Suppliers Beset by Difficulties

NOW WE COME to our industry co-workers, our manufacturers and suppliers. They are beset by the same difficulties which plague those of us in the operating division of the telephone industry. They experience the same material shortages, they have the same need for skilled manpower and also must coordinate their work to achieve efficient and economical production in order to keep down costs. No matter how well a telephone company may plan its construction program insofar as local material, labor and equipment

(*Please turn to page* 60)

Washington Bureau Reports

(Continued from page 29)

inclusion of operators in exchanges of less than 500 stations in the FLSA provision.

The testimony was offered by Carl M. Ostby, general manager of the Garden Valley Telephone Company, Erskine, Minnesota, representing the United States Independent Telephone Association, and William F. Miller, secretary-treasurer of the Iowa Independent Telephone Association, appearing for the Independents in his state.

Mr. Ostby stated emphatically that the 500-station could not be removed "without destruction of rural service" and that the scope of the exemption should be increased to include exchanges up to 1000 stations.

Mr. Miller also strongly advised against revision of FLSA on an all-inclusive basis, but declared that "if a change in the minimum wage is inevitable" then exchanges with subscribers numbering up to 499 should continue under the present exemption clause, while exchanges in the 500-999 class should hold their present statutory 40-cent minimum. He stressed that "if any increase in the minimum wage is inevitable, it should apply only to those exchanges having 1000 stations and over."

The Communications Workers of America, meanwhile, has stated it will file a brief with the subcommittee in which it will reiterate views submitted before the House Labor subcommittee on the same legislation, and that the CWA "believes that no exemption at all should be granted but that if any exemption should be continued it should apply only to companies servicing less than 300 stations."

Mr. Ostby drove home the impact of both a 60-cent and 75-cent minimum wage provision on his company, as an example, presenting two tables which showed that for private line business subscribers the monthly rate would have to be increased from $2.88 to $5.24 under a 60-cent minimum, while the rate would have to go to $6 if a 75-cent standard were scheduled.

Mr. Miller brought out that of the slightly more than 800 exchanges in Iowa, 630 have less than 500 stations, 130 have from 500 to 999 stations, and only 45 were in the over 1000 class. He offered the view of his Association as "opposed to the principle of minimum wage legislation in its entirety." Wage-hour laws, he pointed out, do not differentiate between metropolitan and rural areas.

WM. F. MILLER, secretary-treasurer Iowa Independent Telephone Association, represented Iowa Independents at recent FLSA hearing.

Short-Handed FCC Seen

THE DEPARTURE of FCC Commissioner Clifford J. Durr from the agency is likely to make the Commission a bit duller, although the companies who received the brunt of his somewhat left-wing opinions probably are not viewing Mr. Durr's leaving with too much regret.

Although Commissioner Durr is of the highest personal integrity, he has embarrassed the Commission from time to time with his speeches on civil rights and his demands that Justice Department reports on broadcast applicants should not be considered by the Commission in deciding broadcast cases unless witnesses took the stand and testified against the allegedly subversive applicants. Although he has stressed in various addresses that he was speaking as an individual and not an FCC representative, his position at the Commission naturally gave his statements some official tie in in the eyes of casual observers.

Meanwhile, it appears that the FCC may again have to get along with six members when Mr. Durr's term expires June 30. With the strong possibility of a Republican President taking over next year, the Senate is showing no indication of confirming any long-term appointments, and Mr. Durr's successor will have a seven-year term ending in 1955. President Truman could, however, make a recess appointment if Congress adjourns before the political conventions, if he is able to persuade anyone to take what could be a very short-lived job.

Leading possibilities for appointment, if the President makes one, include FCC Chief Accountant William Norfleet, Assistant Chief Engineer (broadcasting) John A. Willoughby, and Leighton H. Peebles, wartime communications chief of the War Production Board and now with the National Security Resources Board.

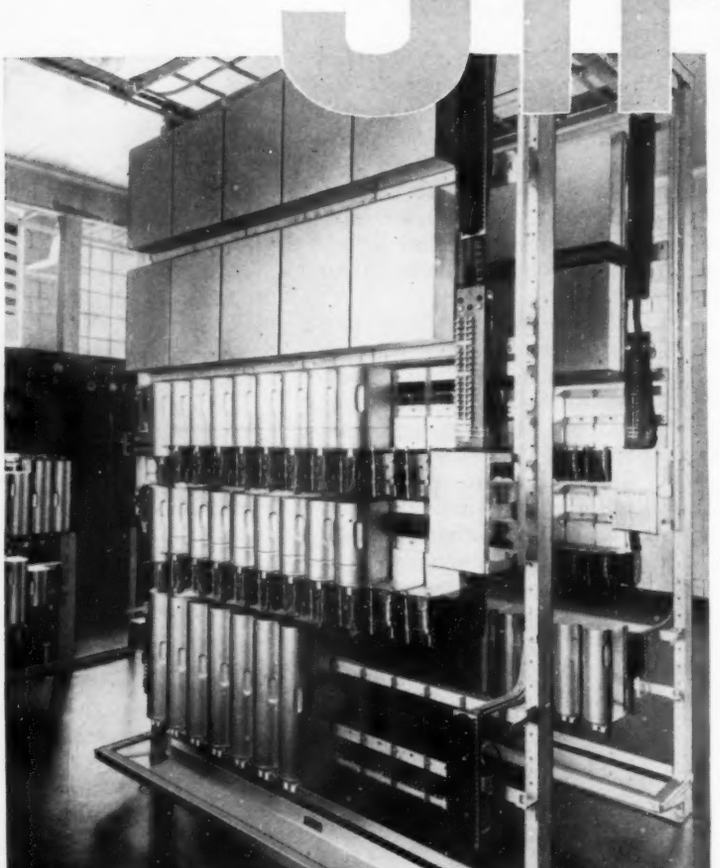
Jones Opinion Gets Notice

BECAUSE HE is very likely to be FCC Chairman if a Republican President is elected this fall, Commissioner Robert F. Jones attracted considerable attention with his separate opinion in the agency's international telegraph rate increase order. It was the first full expression of regulatory philosophy handed down by Commissioner Jones on a common carrier matter since joining FCC.

Mr. Jones criticized the majority for not taking action on a permanent rate structure, contending that it should have come to grips with the issues instead of issuing a temporary increase with a promise to produce a proposed decision on the broad issues later. He also contended that the rate schedules approved should have been somewhat higher.

Commissioner Jones declared that "Under our American system the operation of international communications is part and parcel of our private enterprise system; on the other hand the American companies engaged in international communications are the lifelines of the nation to all parts of the world. Strengthening the communication position of the United States amidst the tense international situation should transcend any desire to be parsimonious with these American carriers; rather I view our imminent national need is to maintain strong and vigorous communication outposts with our national defense at this time, if not to strengthen them within the terms of the Communications Act."—THE END.

. . . in space economy



THESE AVERAGES PROVE STROWGER LEADERSHIP

The Type 11 Strowger M-A-X (Main Automatic Exchange) offers a typical example of the space economy provided by Strowger equipment. Based on the average space requirements for exchanges of 100 lines to 800 lines capacity, the Type 11 requires from 23% to 58% less floor space, and from 10% to 56% less cubage, than other makes having comparable facilities.

owger Wins...

when the averages are reckoned

Derby winners are made by a long record of high average performance—not by a single exhibition of speed. In the same way, Strowger equipment WINS in space economy —not only in one spectacular case but "on the record of the averages." Time after time—in case after case—it saves floor space and building cubage, and thus makes it possible to cut to a minimum the cost of exchange buildings. With building costs as they are today, that makes Strowger again the winner!

Let us show you how little space you will need for Strowger equipment in your specific application. You'll find that Strowger not only outperforms any competitive equipment offering comparable facilities; in almost every case, it needs less space in which to do it!

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
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Putting Your House In Order Before Applying For Rate Adjustments

By
MERLE M. HALE

General Commercial Superintendent
The Lincoln (Neb.) Telephone & Telegraph Company

"PUTTING YOUR House in Order Before Applying for Rate Adjustments," sounds like it might have reference to spring house cleaning. And it does seem to me that there is a similarity between these two activities, although I do not profess to be any authority on house cleaning. It has been my observation that a good housewife keeps her house in order all year around, but in the spring and in the fall she does some major clean-up jobs.

That is the way it should be with a well-managed telephone company. We should keep our plant in good condition and give good service all the time, whether we are planning on asking for a rate increase or not. Occasionally it will be necessary to do a major job, such as rebuilding the farm plant, replacing worn or obsolete equipment, etc. Then when we plan to ask for a rate adjustment we will not have to inject any artificial stimulants to bring our service up to the quality which the customers deserve and expect.

Plant Maintenance Important

FROM WHAT I read in our papers at home and in the industry magazines and news services it would seem that some of us have not been keeping our houses in order, and some of us have failed to put our houses in order before making application for a rate adjustment. Such publicity is unfavorable for the industry and we should all do everything we can to eliminate the causes for such publicity.

I doubt if I will tell you anything you do not already know, but it will do us all good to review some of the factors which are important and should be considered in connection with a rate adjustment application. You cannot put your house in order over night, and so the maintenance of a plant in good condition and the furnishing of A-No. 1 service at all times is a must.

Good Service An Obligation

IT IS NOT only important in case we find it necessary to apply for increased rates, it is an obligation which we owe to the public and which they have every right to expect, and if they do not receive it they have every right to complain. It is fairly certain that if you are giving poor service you are receiving complaints, but if you ask for a rate increase, these complaints will be multiplied a thousandfold. There will even be organized opposition by the local Chamber of Commerce and other civic groups. You can't expect subscribers who have been receiving poor telephone service to accept with joy the news that the telephone company wants more money. You may expect much more than mere passive resistance.

So the first and most important thing to do before applying for increased rates is to be certain that your service is top quality. If it is not, I caution you that you are going to have headaches ahead of you. One state commission had this to say: ". . . *we feel that failure to maintain a telephone plant in a high state of efficiency and to make additions and betterments to the extent necessary to keep pace with the modern standards of service results in subscribers receiving inadequate and unsatisfactory service, and companies providing such service should not expect a rate of return which would compensate them at the same rate of return as is allowed companies which maintain a good standard of service.*"

Develop All Revenue Potentials

WE'LL ASSUME that you have a good telephone plant and are furnishing good telephone service, and that expenses exceed revenues and it is necessary for you to ask for higher rates. No telephone company ever wants to ask for higher rates and they always put off such action as long as possible, and more often than not, put it off longer than they should.

However, before deciding that a rate increase is the only answer we should review our operations and exhaust all revenue-producing possibilities. By this I mean we should be certain that we have developed to the fullest extent some of the allied services of our business such as miscellaneous equipment, including ex-

GET

HIGH EFFICIENCY

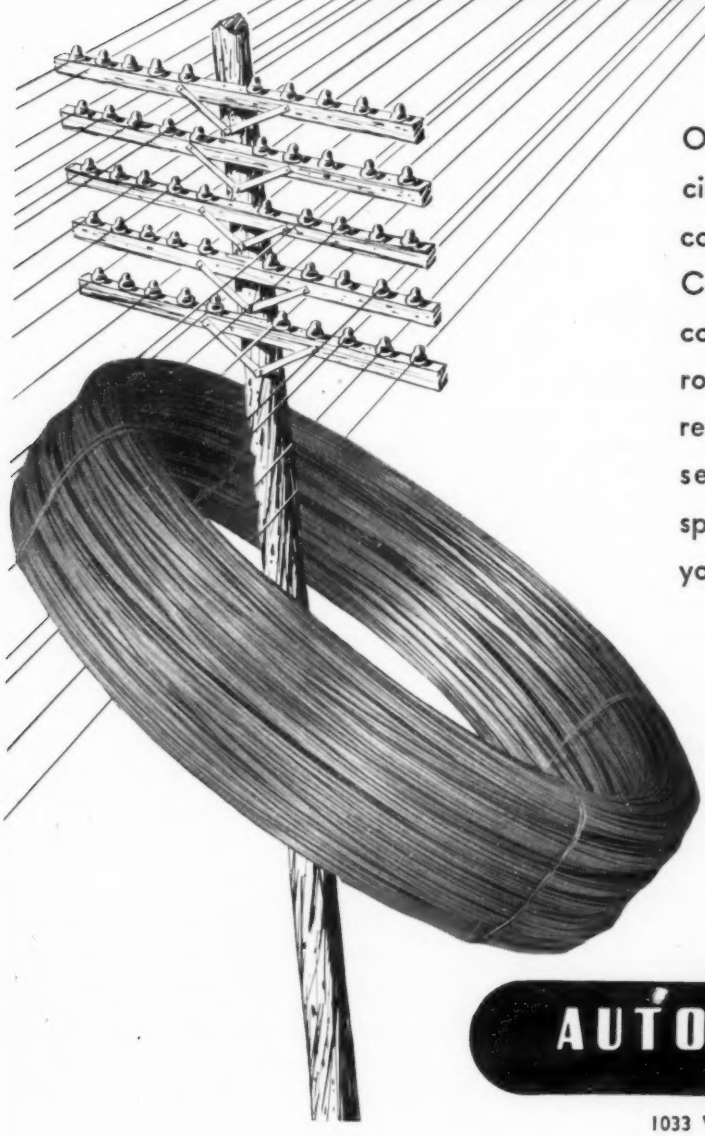
TRANSMISSION

on Long Lines and Toll Circuits

with

GENERAL CABLE

BARE COPPER LINE WIRE



On long, heavily loaded rural lines or busy toll circuits, you can depend on General Cable bare copper line wire for highest transmission efficiency. Copper has the best electrical conductivity of all commercial metals. It is highly resistant to corrosion and its salvage value for re-use materially reduces its original cost. For long life, dependable service and maximum transmission efficiency, specify General Cable bare copper line wire for your next overhead installation.

Readily Available in Two Standard Sizes

No. 12 A.W.G.—0.080" dia.
No. 10 A.W.G.—0.104" dia.

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AUTOMATIC ELECTRIC SALES CORPORATION

1033 WEST VAN BUREN STREET, CHICAGO 7, ILL.

tensions, keys, buzzers, P. B. X. systems, etc., directory advertising, secretarial service or answering bureau service, etc.

There is revenue in these items and it can be secured with a minimum of investment. For example, last year for our company as a whole, large and small exchanges included, our annual net revenue per business account for directory advertising was $5.21. In other words, we increased the monthly rental rate of every one of our business subscribers 44 cents per month. For our company it meant a total net revenue of $56,557.40, and for us that is important money.

We all assume that all of these miscellaneous revenue possibilities have been developed and more money is still needed and the only answer is a rate increase. If this be the case it is my recommendation that it be a general rate increase. By that I mean that the entire rate structure should be examined and brought in balance. We should consider not only the monthly rental rate for exchange service—we should also include in our consideration our intra-state toll rates, the rates for miscellaneous equipment and services, and the installation and move charge schedules.

Eliminate Free Toll Service

THERE IS ALSO another phase of the telephone service of many companies which should receive consideration before applying for a rate adjustment. I have reference to the furnishing of free toll service. In some cases the subscribers of an exchange are provided free calling privileges to a neighboring exchange or exchanges while paying no more monthly rental than subscribers of other exchanges of comparable size who receive no free added exchange service.

When this occurs we have discrimination, which, as you know, should be avoided especially by a public utility. All surveys which have been made in connection with this type of service show that the greatest share of the service is used by a very small percentage of the subscribers. Since there is no such thing as "free" telephone service, it means, in such cases, that a large percentage of the subscribers are paying the way for a few.

It is not fair to ask these subscribers to pay still higher telephone rates and continue to give away service used by a relatively few. In our recent application we discontinued all "free" toll service and substituted a plan whereby if a majority of the subscribers of an exchange desired calling privileges to a neighboring exchange it would be provided to the entire exchange and the exchange would then be placed in the next higher rate bracket.

MERLE M. HALE, general commercial superintendent, Lincoln (Neb.) T. & T. Co., told USITA Executives' Conference that maintenance of plant and furnishing of A-1 service at all times is a "must."

As you know, there is no magic formula for developing telephone rate schedules. The plan too often followed is to add 25 or 50 cents per month to each main station, or more if those figures do not produce the required total. It seems to me that first we should determine how much additional revenue is needed, and then spread that amount over the entire rate structure on the basis of the value of service, the usage of the service, and the ability to pay.

If the company is a multi-exchange company operating in an integrated area, I think it is advisable to classify the exchanges into groups according to the station size, and to add uniform rates for each group regardless of the investment variation that may occur between exchanges in a group. In our state this plan of applying rates has been accepted by the commission as fair and equitable, and our rates and those of the Bell Company operating in Nebraska are on this basis. I understand such a plan has been approved in several other states.

Preliminary Publicity Program

WE'LL ASSUME that you have developed a balanced rate schedule and you are about ready to file your application. But before you do this, and long before, you should have been preparing the public with a well organized publicity campaign. For one full year before filing our case we carried on an advertising program stressing the lack of adequate telephone facilities.

We used many of the very fine newspaper ads and mailing pieces of the Advertising Institute regarding waiting lists. In our latest exchange, Lincoln, where we were shortest of central office and cable facilities, we used nearly a full page ad to give complete information as to the waiting list situation. The ad included a map of the city, on which areas were shown where we were short of cable facilities; it listed the number of applications which we had on hand and a list of the central office equipment which had been added and which we still had on order for each office. It also outlined the details of our priority plan for handling held orders. We had many fine comments regarding this and many of our other ads, but the point is that the advertising program made the public conscious of the fact that telephone service was wanted; that it was hard to get; that it was valuable.

When we come nearer to the time of filing our application we ran ads about expenses going up and net income going down. In these ads we detailed the percentage increase of various of our expenses such as pay rolls, wire, pole, switching equipment, etc. After we had our ground well prepared, we filed our application.

Information to Employees

IMMEDIATELY after filing our application we called a meeting of our supervisory personnel at which time we reviewed the circumstances leading up to the filing of our rate increase application, described in detail the application which had been made and explained carefully the part which each of them should play in the weeks to come. We gave them considerable material regarding the application in order that they would be well prepared to answer questions which might arise. We prepared an employee information booklet which, by the question and answer method, attempted to anticipate the questions which might be asked them.

We included what we considered to be appropriate answers for each question. The booklet included a complete copy of the proposed rate schedule. We also provided rate cards for each office, so that each commercial employee would have at his finger tips a summarized list of the present and proposed rates at his exchange. We also provided a

(*Please turn to page* 64)

Announcing Reduced Prices

on Lenkurt Carrier Systems

Types 10, 12, and 17

Effective May 15, 1948, prices on LENKURT Single Channel Carrier Systems, Types 10, 12, and 17, are substantially reduced, the saving to customers averaging approximately 10%. These reductions are made possible by the production economies which have resulted from the steadily increasing volume of orders for these popular systems.

At the new lower prices, which will apply on all shipments made on and after May 15, these Lenkurt carrier systems provide an even more economical means of adding telephone communication channels on existing wire leads.

TYPE 10

Short-haul system, for five miles or one hundred. Applicable to lines having not over 12 db attenuation at 8 kc. Extremely economical to operate, as it uses only two tubes per channel, including signaling.

TYPE 12

Long-haul system, applicable to lines having up to 35 db attenuation at 8 kc (30 db loop gain at terminals, 60 db loop gain at repeaters). Provides an audio channel of better than 200 to 3200 cycles. Carrier repeaters are available for use on extremely long circuits.

TYPE 17

Long-haul system, designed primarily to provide a "second story" for a Type 12 or other similar single-channel system. However, the Type 17 is completely independent, and need not terminate at the same point as the other system. Carrier repeaters are available for extremely long circuits.

Lenkurt systems are the only carrier systems at such low prices that meet all requirements for nationwide toll dialing service. Let us quote you on the carrier system in which you are interested.

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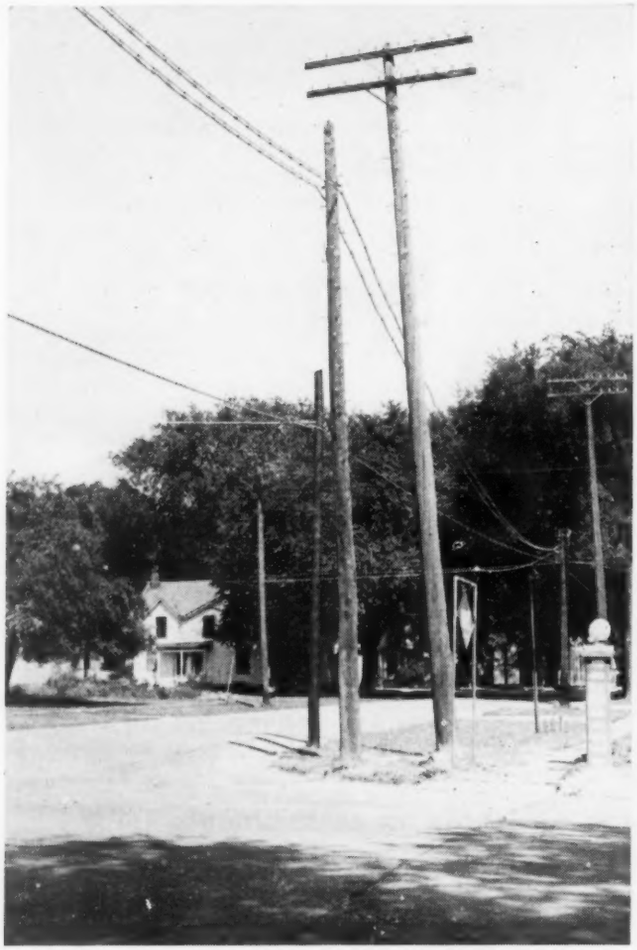


Fig. 4—New aerial cable plant.

Fig. 5—Pulling the strand.

Modern Aerial C

AFTER THE POLES, anchors and guys are in place, the next step in aerial cable construction is the selection and placement of the supporting strand for the cable. The strand is selected on the basis of the weight of the cable that it is to support. Only in exceptional cases is a strand chosen with a strength of less than 6000 lbs. A strand of this strength is sufficient to support cables weighing up to approximately two and a quarter lbs. per foot. A 10,000 lb. strand is used for the support of cables weighing up to five and a quarter lbs. per foot, while a 16,000 lb. strand is used for still larger cables.

Table I shows the weights of various sizes of cables as produced by one manufacturer.

It will be seen from Table One that 6,000 lb strand will be sufficiently strong to support 24 gauge cable up to 202 pairs in size, 22 gauge cable up to 152 pairs, and 19 gauge cable up to 76 pairs. On the other hand, 10,000 lb. strand will support 24 gauge cables up to 606 pairs, 22 gauge up to 404 pairs, and 19 gauge up to 202 pairs. For larger cables 16,000 lb. strand will be required.

To determine the proper side of the pole for the supporting strand, the old rule was "on the alley side for cables in alleys and on the field side for cables on streets." With the advent of the cable spinner and new methods of placing the cable to the strand directly from the reel, this rule has been largely outmoded.

Fig. 6—Making the oscillation test. Table III gives oscillation count.

Cable Construction

By G. A. KLEIN
VICE PRES. & GENERAL MGR.
Nebraska Continental Telephone Co.
Columbus, Neb.
(A Gary Group Operating Company)

In the April issue of TELEPHONE ENGINEER AND MANAGEMENT Mr. Klein discussed the building of a pole line. He continues this series with a consideration of the subject of placing the suspension strand.

Single aerial cable runs are now almost universally attached on the street or alley side of the poles and only rarely on the field side.

MOST COMPANIES follow the practice of attaching the supporting strand to the poles by means of three-bolt cable suspension clamps. These are fastened to the poles by 5/8" through bolts, and offer a secure and substantial attachment. A washer is placed on the bolt on each side of the pole. A nut is sometimes added to the bolt under the suspension clamp in order to hold the cable well away from the pole and prevent chafing. It is the writer's opinion, however, that for spun cable the extra nut is unnecessary, since the cable will be shielded at each pole anyway. If the nut is omitted it will be found that the attachment is more solid and

No. Pairs in Cable	Weight Per Foot In Pounds 24 gauge	22 gauge	19 gauge
26	.605	.733	1.100
51	.852	1.094	1.637
76	1.121	1.382	2.326
101	1.325	1.662	2.806
152	1.682	2.322	3.872
202	2.224	2.438	5.041
303	2.920	3.902	6.973
404	3.684	4.744	9.077
606	5.103	6.846	
909	7.200	9.975	

Table I—Weights of various sizes of cable as produced by one manufacturer.

that there is less tendency for the through bolt to bend and distort.

If the strain on the clamp will be extreme, such as with unusually long spans or heavy cable, a reinforcing strap is used. This is a small metal strap designed so that one end can be attached to the messenger bolt, and the other to the pole (just above the cable) by a lag screw.

At corners a special type of three-bolt suspension clamp is sometimes used. This is a curved clamp very similar to the regular clamp except that its ends are slightly turned to relieve the strain on the supporting strand as it passes the pole. The three-bolt suspension clamps of both the above types are equipped with two half-inch bolts. The center hole is left vacant for the through bolt, which doubles as the third clamp bolt.

The clamps should be located on the poles at sufficient height to permit the strand to satisfy legal clearance requirements over highways, drives and crossings. In most states these are 15 feet over drives, 18 feet over highways, and 27 feet over railroads. Allowance must be made for considerable sag in the strand. Table II, a table reproduced by permission from Automatic Electric Company's *Handbook For Telephone Managers And Engineers,* shows the approximate sag to be expected from the suspension of the various sizes of cables.

An additional safety allowance of at least six inches (preferably more) should be made so that there will be assurance that all legal clearance requirements have been fully met.

If the height of the poles will permit, the suspension clamps should be so placed that when the strand is attached it will assume a reasonably uniform grade, and not vary up and down from one pole to the next.

If the strand is to be attached to power poles, separation as required by law must be maintained between it and the power conductors. This separation should be of a minimum of 40 inches for secondary power conductors, and for primary conductors up to 8700 volts. Power conductors of higher voltage require a minimum of 60 inches clearance. Since it is customary to place drop wire runs above the strand, and these runs must also have the above clearances, the strand should whenever possible clear the power conductors by from six inches to a foot more than the limits specified.

In hauling and reeling out the supporting strand some type of cable reel or messenger reel trailer is desirable. Reels usually come with strand of considerable length and are comparatively heavy and unwieldy. If no trailer is available, the reels of strand must be delivered to the job by some other means. Automobile wreckers are sometimes used for this purpose, since the crane which they carry is usually well suited to picking up objects of this nature. If no trailer is available it will be necessary to support the reel by a shaft mounted on cable reel jacks or, if jacks are not at hand, by a built up shoring of some nature. In certain cases the reel may be set up in the flat bed of a truck, and this arrangement is quite satisfactory.

IF THE ROUTE of the cable is free of obstructions and it is not necessary to take the strand above any drops or services (needless to say, it should be under all power services wherever possible), one end may be attached to one of the dead end poles and the strand reeled directly from the truck or trailer along the route. If there are obstructions of any consequence on the right of way, it is usually necessary to set up the reel at one end of the route, and thread the cable endwise over and around the obstacles to the dead end pole. The strand is attached to the dead end pole through a thimble-eye nut, itself affixed to the end of an angle-eye bolt. (The angle end of this bolt is used for the securing of down guys, as mentioned in Part I of this article.)

Should the strand be of 6000 lb. size one heavy three-bolt clamp is used for its dead ending; if it is of 10,000 lb size two clamps are used; the 16,000 lb size requires three clamps. A twelve inch tail is left, served up with two serve-up clips or with soft .109 wire.

After the strand is paid out it may be laid in position above the suspension clamps. If, as in some procedures, the suspension clamps are not mounted until after the strand is pulled, pole steps may be driven in the poles at the approximate height of the strand and used for temporary supports. These temporary supports are sometimes used in any case, since a better grade for the strand may be secured after it is pulled. It will then serve as its own guide

Table II—Sag Of Aerial Cable Spans At 60° F.

Cable Size	Strand Size	Span length (feet) 100	110	120	130	140	150
		Sag in inches					
26 (24 ga.	6,000	7	8	10	12	13	15
(22 ga.	6,000	9	11	13	14	17	20
50 (24 ga.	6,000	9	11	13	14	17	20
(22 ga.	6,000	10	12	14	17	19	22
100 (24 ga.	6,000	12	14	17	20	24	27
(22 ga.	6,000	14	17	20	24	28	31
200 (24 ga.	6,000	17	20	24	29	33	38
(22 ga.	10,000	11	13	16	19	22	25
300 (24 ga.	10,000	11	13	16	19	22	25
(22 ga.	10,000	14	17	20	24	28	31
400 (24 ga.	10,000	14	17	20	24	28	31
(22 ga.	16,000	16	19	23	27	31	36
600 (24 ga.	10,000	17	21	24	29	33	38
(22 ga.	16,000	15	18	22	25	30	34
900 (24 ga.	16,000	15	18	22	25	30	34
(22 ga.	16,000	18	22	26	30	35	40

for the location of the permanent supports.

Splices in strand are made with steel splicing balls which use the same principal as do strain insulators. These splicing balls are commonly known as strand connectors. Needless to say, splices should be held to a minimum since they are expensive and interfere with the riding of the cable in future maintenance operations. As with extra strain insulator splices, one three-bolt clamp is used for 6000 lb strand, two for 10,000 lb., and three for 16,000 lb. strand. If more than one clamp is used they are placed about five and a half inches apart for cable in rings, so that a cable ring may, if necessary, be inserted between the clamps. Spun cable eliminates this requirement, and the clamps may be installed with little, if any, space between them. The tails at each splice should be seven inches long, and served to the strand with serve-up clips or soft .109 wire.

On corner poles where the strand is on the side of the pole opposite from the anchor, metal reinforcing links are used as an additional means of securing the strand. One of these links is placed on each side of the suspension clamp, and secured to the pole by a half inch lag screw. Without these links all of the strain is imposed on the angle-eye bolt.

The strand is now ready for pulling (Figure 5). A heavy set of three sheave blocks or, preferably, a chain hoist is used for this purpose. A grip of the Chicago type should be employed for attaching the blocks or hoist to the strand. Other types of grips, if used, are liable to injure the strand under the extreme strain to which it will be subjected. If no approved grips are available a short loop of strand may be attached by means of heavy three-bolt clamps, and the blocks or hoist hooked into it. This arrangement is one familiar to many of the old timers since it was always used prior to the advent of the modern type of grip. The other end of the pulling agent is attached to the dead end pole by means of a sling made from strand looped around the pole. The strand is then pulled to a reasonable tension and an inspection made of the run to see that the strand is not hooked under any obstruction, and that it is properly slipping past all of the poles and around corners. After this inspection the final pulling may take place.

ONE OF TWO methods of determining the proper tension is followed. The first consists of an oscillation test. Table III, as are the remaining tables in this article, by permission from Automatic Electric Company's *Handbook For Telephone Managers And Engineers*, shows the proper number of oscillations that will occur from spans of various lengths at various temperatures when the tension is correct.

Table III—15 Second Oscillation Count For Measuring Tension In Aerial Cable Supporting Strand

Span Length (feet)	Messenger Size 6,000-M. 60° F.	6,000-M. 100° F.	10,000-M. 60° F.	10,000-M. 100° F.	16,000-M. 60° F.	16,000-M. 100° F.
90	33	28	41	39	46	44
100	30	25	38	43	49	46
110	27	23	42	39	44	42
120	25	22	39	36	41	38
130	23	20	36	33	38	36
140	22	19	33	31	35	33
150	20	18	31	29	33	31

The oscillation test is made in the following way: A hand line is thrown over the center of the span to be tested, and the strand pulled down to a reasonable limit (Figure 6). It is then released and permitted to oscillate vertically. At each downward limit a slight pull is given the hand line so that the oscillations will retain a sufficient length of movement. As the oscillations occur they are counted for a 15-second period and the result is compared with Table III. If the number is more than that shown for a comparable span in the table the strand is tighter than necessary; if it is less the strand is not tight enough.

It is extremely important that the tension be approximately correct. If there is not enough tension the cable will have an unsightly sag. If there is too much tension, vibration and bowing of the cable will occur and result in future trouble.

THE SECOND METHOD of determining strand tension is through an instrument called a dynamometer, which by means of a direct reading gauge tells the tension in pounds. There are two types of this instrument. One, probably the more widely employed in the Independent field, is connected between the pulling force (blocks or hoist) and the load (strand), and the resultant tension shows on the dial. The second type, extensively used by Bell Companies, is clamped directly to the strand at any point in the run, not necessarily where the force is applied. The strand is distorted slightly out of line by a lever on the instrument. The force required to achieve this distortion is related directly to the tension of the strand, and this tension is shown on the dial of the instrument. The first tvpe has the advantage that, in addition to strand, it may also be used to measure the tension of wire or rope of any size. The second type can be used only for strand; however, it is more easily attached and will determine the tension of strand already in place without disturbing the dead end.

Table IV shows the proper tension, in pounds, of the various sizes of strands.

The strand is first pulled to a tension somewhat in excess of that actually required in order that all of the slack in the guys and anchors may be eliminated. It is then slacked off and again pulled to the proper tension.

After this second pulling the strand is dead ended and permanently fas-

(*Please turn to page 69*)

Table IV—Tension (In Lbs) To Be Placed In Aerial Cable Supporting Strand

Temperature (Degrees F.)	6-M Strand	10-M Strand	16-M Strand
20	1,400	1950	4200
40	1,250	1700	3900
60	1,100	1500	3600
80	950	1350	3300
100	800	1200	3000
120	650	1050	2725

National and State Association NEWS

Nebraska Association Elects Neil Shreck, President

Meeting at the Hotel Paxton, Omaha, March 30-31, members of the Nebraska Telephone Association placed the general theme of the group's 48th annual convention on the responsibility of telephone companies to serve public demands to the fullest extent.

Officers elected are: President, Neil Shreck, Bertrand; vice-president, D. M. Davis, Aurora, and secretary-treasurer, Geo. M. Kloidy, Lincoln (re-elected). H. L. Frentress, Omaha, Merle M. Hale, Lincoln, and Mark D. Young, Cozad, were reelected as directors for terms of three years.

Due to the illness of president W. W. Johnson, Columbus, president-elect Neil Shreck delivered the first convention address.

Mr. Shreck stated that analysis of reports on file with the Nebraska State Railway Commission discloses a deplorable financial condition of many telephone companies, with corresponding conditions of telephone plant and the services rendered by some of them.

"Although 31 companies applied for and received authority to adjust their rate schedules upward during last year," he said, "and 12 so far this year, with six applications filed recently, but not yet approved, quite a number of other companies remain who should immediately take inventory of their condition and take immediate steps to improve this financial condition if it is found that an upward adjustment of their rate schedules is required."

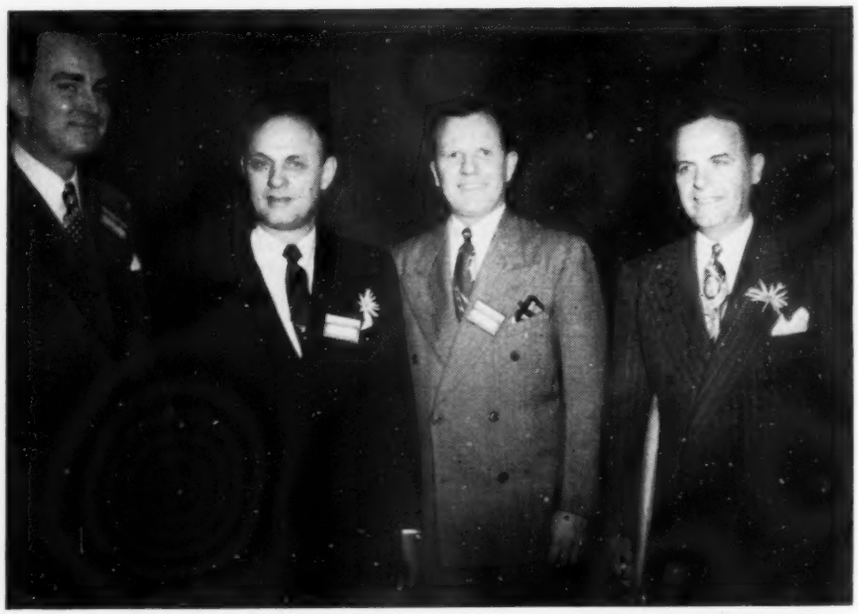
Mr. Shreck urged that before applying for a rate increase the company should look over it's plant and try to remove all conditions that are a drain on the treasury of the company.

"Free service lines," he said, "are the worst item that some of us have. In my case, we inherited a line for free country service. I have tried to eliminate this but, to date, have been unsuccessful. About three years ago I requested that a study be made by the company with which we connect and ourselves. As a result, it was recommended to me, that, on account of the heavy traffic on this line, that I should build two more free service lines, which I refused to do. I feel that the rate subscribers are paying is for their own telephone and being able to talk to others on my exchange, not to every phone on the other four exchanges which are located in our county.

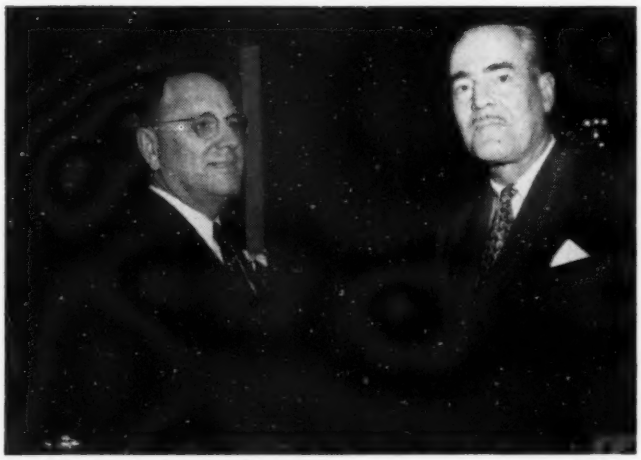
"To have free service lines is like Mr. Kloidy going into a grocery store and buying 12 oranges and paying for them, then asking the store keeper to give him three more because he had paid for the 12. When we cut over to dial we told our subscribers that if they dialed for the free service line and it was busy and the call was important, to dial for long distance. To date, we have had no complaints, and incidentally, last month our gross toll revenue was the highest in the 26 years that we have owned the exchange. I feel that free service lines have no sound economic reason for their existence."

Thomas C. Woods, president of The Lincoln Telephone and Telegraph Company, told the convention group that any telephone organization is always a busy outfit—it is never static—it always has its problems, Mr. Woods said. "These problems have often been somewhat unbalanced as between divisions and departments, between front offices and physical work, between management and productoin. Today the activities and the problems are more fully rounded and there appears an extraordinary challenge for all forces and everybody in the business.

"Unprecedented service demands continue. They may be born of today's relatively high economic level in all other business. They may have been spurred by the dislocation of people during the war period who gained an appreciation of telephone service through wider use because of their situations. They may be contributed to because of unadjusted conditions in which it is less easy than formerly to accomplish many things and repeated efforts are required to do what was formerly possible by single errands. However occasioned or brought about, these demands cannot be sidestepped. Any



Left to right: L. H. Warner, Automatic Electric Co., Chicago, Merle Hale, Lincoln, Fritz Noble, Lincoln and Clyde Bailey, Washington, D. C., are snapped by the TE&M Camera during Nebraska convention.



Walter F. Roberts (left) of the Nebraska commission and Thomas C. Woods, president of Lincoln T & T, discuss Nebraska convention activities.

Nebraska commission chairman John Knickrehm (left) and James W. Cook, vice president of Northwestern Bell, Omaha, addressed Nebraska meeting.

public service must accept the public trust to serve to the full extent of public demand. And when that public service is a monopoly that trust is peculiarly necessary and important. So long as unfilled demands exist, regardless of whatever it takes to meet them in cost or other effort, our obligation is to meet them as speedily and completely as may be found possible. No other choice or alternative will fulfill our obligation. No other view conforms with our tradition or our accepted duty in the public interest."

Mr. Woods stated that in almost any other enterprise sane and prudent management would and could await a time to make certain the large investments now forced by present demands were determined to be permanently required.

"Caution," he said, "would prescribe that we be certain that the current business bulge was not a passing thing. We cannot do that. We cannot wait to see whether high cost levels now experienced are merely temporary and will revert to former levels or whether they will persist at today's elevation or go even higher. We must proceed as of now and continue to do so until the margins between service demands and our ability to supply them have been entirely erased. . . . "

Commenting that today's problems are threefold, Mr. Woods stated that "no one man or group has the capital necessary to finance our continuing growth and expansion.

"We must attract capital," he said, "to serve and meet the demands of the public. The public must be able and willing to pay for what they demand and want. The people—men and women—operating the utility must have an attractive pleasant job with adequate pay. So must the stockholder who invests his money that more service will be available —more jobs—some place to make a living. Today more than ever before the economists are puzzled as to where and who will provide the risk capital to support a tremendously expanded and growing economy and the wherewithal to provide secure employment. According to many economists it requires a $7,500 to $8,000 investment to provide a job for one additional person in our business.

"All I mean to say is that now, more than ever before, we must have an intelligent slant of the problem. We must have cooperation, coordination and the ability to comprehend the balance required. The public, the workers and the investors are not engaged in personal strife with one another. They are and should be looking down the same gun barrel. Peace and the blessedness of being citizens of the greatest country

Board of Directors of Nebraska Association during their meeting. New president, Neil Shreck is seated left front.

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on earth call for mutual Christian understanding and teamwork."

Nebraska Commission Chairman John Knickrehm reviewed the development of utility regulation in the United States, stressing that competitive telephone systems early were found to be unsatisfactory and that the concept of regulated monopoly had grown up.

Other highlight addresses were delivered by vice president James W. Cook of the Northwestern Bell Telephone Company, John H. Agee, vice president, Lincoln Telephone & Telegraph Company and chairman of the Employment Relations Committee of the United States Independent Telephone Association, Clyde S. Bailey, USITA vice president, Ray W. Smith, Editor of Telephone Engineer Publications, Dr. Karl Arndt, Professor of Economics of the University of Nebraska, Mayme Workman, Traffic Editor of Telephony, and Mrs. William Saltmarsh, of Annandale, Minn.

◆

Iowa Independents Hold 52nd Annual Convention

Members of the Iowa Independent Telephone Association held their 52nd annual convention April 6-7 at the Hotel Fort Des Moines, Des Moines.

Directors reelected by the convention are: E. G. Bellamy, Knoxville; E. G. Carlson, Creston; Toral Duckett, Sioux Falls; L. D. Meyers, Woodbine, and L. F. Morrison, Grinnell. Other members of the board are: Roy E. Brandel, Mt. Pleasant; C. A. Farrington, Centerville; W. A. Fowler, Pella; T. J. Griffith, Fort Dodge; Clyde McFarlin, Montezuma; H. B. Melick, West Liberty; Don Mong, Newton; W. E. Naylor, Kansas City, Kansas; C. C. Pearce, Riceville, and J. P. Walters, Toledo.

Officers elected are: Mr. McFarlin, president; Mr. Bellamy, first vice president; Mr. Pearce, second vice president, and secretary-treasurer Wm. F. Miller, Des Moines.

At the Monday afternoon session, C. D. Peebler, executive assistant of the Northwestern Bell Telephone Company, Des Moines, described the use of microwaves in developing radio relay systems. Also appearing on the afternoon program, Leon F. Roberts, general representative of the Gary Group, represented the United States Independent Telephone Association and addressed the convention on the subject, "Public Relations And The Balance Sheet."

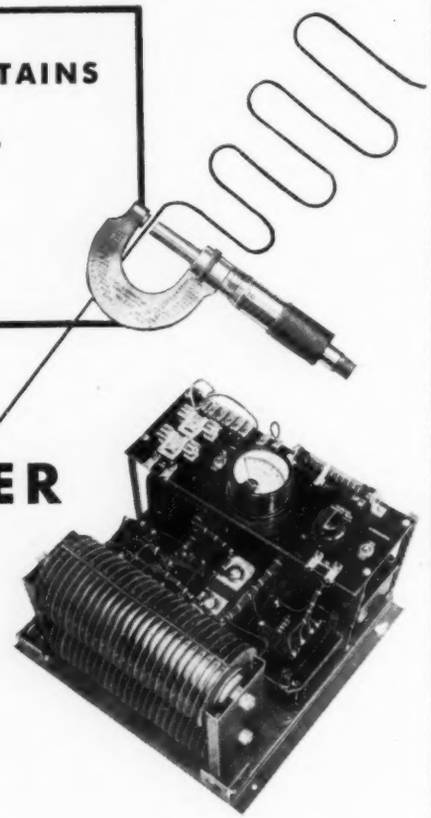
Ray W. Smith, editor of Telephone Engineer Publications as the final speaker at the Monday session discussed the subject "An Editor Views The Industry."

Speakers at the Wednesday morning session were Don Reed, managing director, Iowa Press Association, Des Moines; H. L. Dowd, general commercial manager, Northwestern Bell Telephone Company, Des Moines, and R. C. Reno, vice president and editor, Telephony Publishing Corporation Chicago.

The last session of the convention on Wednesday afternoon was devoted to a panel discussion on problems confronting small telephone companies. Participating in the discussion were: J. C. Crowley, secretary of the Minnesota Telephone Association, St. Paul, as moderator; Howard C. Amick, connecting company representative of the Northwestern Bell Telephone Company, Des Moines; V. H. Lobaugh, telephone engineer, Des Moines; T. J. Newman, vice president and general manager, Iowa-Illinois Telephone Company, New London; C. C. Pearce, secretary and manager, Farmers' Telephone Company, Riceville; M. I. Thompson, Dumont (Iowa) Telephone Company; J. L. Van Horn, general superintendent, Iowa Telephone Company, Grinnell; Ross K. Vernon, Sioux Center, and Rolla Whitaker, Grinnell.

AUTOMATICALLY MAINTAINS
PRECISE CONTROL
OF
VOLTAGE LIMITS

RAYTHEON
RECTICHARGER



The close voltage limits required by automatic telephone systems are maintained by the Raytheon RECTICHARGER because it has no moving parts — nothing to wear out or get out of order — it needs no maintenance. And the RECTICHARGER'S constant potential method of charging prolongs battery life . . . makes fewer renewals necessary.

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WHAT TO DO?
–WELL–?
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SOMETHING OLD
WITH SOMETHING NEW!

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Cheaper to buy Dollars
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to pay for labor.

Let us help you plan
Rearrangements
Additions
and changes
to reduce
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and
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U·S·S Amertel lines

go up *faster*...stay up *longer*

WHEN you use long-span construction with high-strength Amertel wires, you can often cut your pole requirements by 50%. With fewer poles and fewer connections, lines go up faster with substantial savings in man hours and pole line equipment.

The greater strength of Amertel wires assures a higher factor of safety and greater resistance to heavy ice and wind loads. Maintenance costs on Amertel lines are considerably lower than on lines using E.B.B. wire.

COMPARISON

U.S.S Amertel	Minimum Breaking Strength— No. 12 B.W.G.	Heavy Loading Span length
135 grade	1213 lbs.	350 feet
85 grade	793 lbs.	225 feet
B.B. grade	476 lbs.	150 feet

In addition to high strength, Amertel-85 and 135 wires have increased transmission efficiency at voice frequency. We will be glad to supply you with complete technical data on U·S·S Amertel-85 and 135 as well as the regular grades "E.B.B.," "B.B." and "Steel."

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Cleveland, Chicago and New York
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Birmingham, *Southern Distributors*
United States Steel Export Company, New York
UNITED STATES STEEL

Look for this tag
It is your assurance
of high quality wire.

Adequate Earnings, Efficient Service

(*Continued from page 34*)

for this achievement is due mainly to improvements in the art of telephony wrought in the laboratories of the manufacturing companies, notably those of the Bell System.

As you well know, scientific research and development have vastly increased the capacity of existing plant at relatively small cost for additional equipment. Carrier systems for long and short hauls are outstanding examples. Lead-covered cables with 2,400 pairs of conductors in a sheath no larger than was formerly required for 200 illustrate a related form of technological improvement.

The efforts of our scientists are ably seconded by the energy and ingenuity of management. There is no reason to expect that the victories of such teamwork are at an end. Nevertheless, the fact remains that they cannot hope to keep pace much longer with the present rate of rising costs. The time is rapidly approaching when financial relief in the form of higher rates will be necessary throughout the industry.

Before taking our case to the commissions, however, we shall do well to re-examine every possibility of further economy in operation, and to exercise the greatest care to insure that expenditures for rehabilitation and expansion are held to the minimum consistent with good management. Even if our search should reveal no stone unturned, it will help us to make good our case before the commissions. But, a few improvements may still be possible.

There is opportunity to exercise economy of investment in the engineering, design, and construction of plant. At present, with costs at an all-time high, prices leveling off, and businessmen calculating the likelihood of recession, it is only reasonable to get the best possible engineering advice upon contemplated expenditure. It may be that you are not able to maintain a complete engineering staff. No matter: there are first-class engineering firms with highly trained communication engineers available as consultants. It will save you money to make use of them in connection with any major engineering project.

It is also well to remember that you can contract for your outside plant construction and maintenance with construction companies staffed by men long trained in communications and, therefore, able to move in on a job at short notice and complete the work more quickly than you could do it yourself. Reducing the period of construction effects economies in overhead and engineering costs, and brings earlier returns on your investment. An increasing number of telephone companies are availing themselves of these savings.

It is well to look into the ways and means of reducing those margins for growth which, previously, may have been considered normal. For example, where formerly you regarded it as normal to provide for three years' growth, when installing central office equipment, it may be that, today, you should reduce this period to 6 months. Similarly, you may find it prudent to shorten the period allowed for growth when making your plans for outside plant, buildings, or additions. It is true that such curtailment in provision for growth may increase the cost of subsequent additions. On the other hand, it has the merit of enabling a company to spread the use of its available funds for material and supplies. Furthermore, by reducing the installation period, you reduce the time required to turn idle funds into revenue-producing plant—and thereby lower carrying charges.

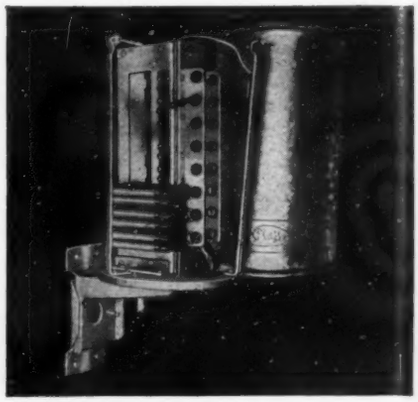
I believe that, in general, the ratio of toll revenue to total revenue has been increasing, and that it is not uncommon to find toll revenue comprising fifty percent or more of total revenue. If this be true, it would be well to "stop, look, and listen," because a comparison of revenues from exchange rates with investments in exchange plant may reveal that the former are entirely inadequate, and that the over-all picture is satisfactory only because of increased "toll terminal compensation." Unless remedial steps be taken to increase exchange rates, it will not take very much of a recession, to say nothing of a depression, to precipitate a serious financial problem. And the history of toll revenue shows that

(*Please turn to page 56*)

STROMBERG-C

cook type S-20

pole cable terminal



Can be used as a protected or unprotected terminal. Made in 6, 11, 16, or 26 pair capacity.

Cook Type S-20 Pole Cable Terminals are carefully engineered to offer the user:

MAXIMUM ECONOMY—because Cook Type H 20 Protector Units, containing fuses and primary and secondary lightning arresters, are added only as they are required.

MAXIMUM CONVENIENCE for installation and servicing. Drop wire connections are at front. Drops are led through individual insulating knockout holes. Self-soldering nozzle lies close to pole. Hood locks in raised position for working. Separate mounting bracket eliminates gaining of pole and provides easy installation.

MAXIMUM PERFORMANCE when used separately or as part of the Cook Trans-Mount System of Protection and Distribution. S-20 is of all steel construction, hot galvanized. Complete terminal designed for maximum insulation.

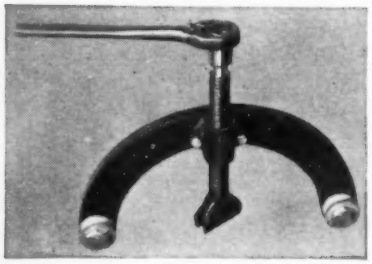
STROMBERG-C

BRANCH OFFICES: CHICAGO

RG-CARLSON Recommends

ratchet handle slack puller

made by Cable Spinning Equipment Co.



The same dependable Slack Puller, but with a ratchet added. This type of handle enables the operator to pull slack with the Little Giant Slack Puller, requiring even less effort than would be needed with the conventional model.

The correct tool for those who use the Puller day after day.

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Low in service cost!

These famous insulators, manufactured by the American Structural Products Company, subsidiary of Owens-Illinois Glass Company, cost little to begin with. Their cost is still lower in service life.

Many of these insulators are still on the job after 20, 30—and even 50—years of active service.

They stand up faithfully against rain, snow, and sleet. They are unaffected by the hottest days of summer, and the coldest nights of winter.

Wherever insulators are needed—those who know the best specify "Hemingrays."

HEMINGRAY No. 16
Has square groove which provides substantial support for line wire.

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• Higher sustained voltage • Longer life • Rock-bottom economy.

These qualities, more important now than ever before, are assured through the constant supervision of America's largest dry battery laboratory.

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they have usually followed the trend of business. While it is true that a total revenue is what we require to carry on, there is every good reason why exchange rates should be made compensatory. However, at this point we meet again the regulatory commissions.

Conclusion

THERE ARE MORE telephones in the United States today than there are in the rest of the world together—over 35,000,000 in fact. It would be difficult to imagine a more impressive testimonial to the efficiency of our telephone industry. The mere fact that our national network contains so many telephones goes far towards establishing its superiority, because the value of a telephone to a subscriber varies directly with the number of persons it brings him in contact with. Nevertheless, we may be sure that the principal reason for their being 35,000,000 telephones in the United States today is the unexcelled efficiency of our telephone industry.

No one who has studied the history of telephony in the United States doubts that its present high degree of efficiency is due in large measure to the private ownership and competitive conditions that have kept the genius of our scientists and managers constantly alert. Credit for this, in turn, goes properly to the independent telephone companies which, in the course of 50 years of struggle and progress, saved our telephone industry from becoming a private monopoly.

When, after 1913, competition between independent companies and the Bell System was modified by eliminating dual facilities within the same area, it was inevitable that the government should regulate what had become, in effect, a series of local monopolies. The telephone industry does not challenge the need for regulation of this sort; but, it does believe that such regulation should beware of killing the object of its concern.

To maintain prewar rate-structures under postwar conditions is bound to lower earnings to the point where new capital will not be forthcoming for the expansion and improvement of service postponed during the war—except, perhaps, in the case of the very largest and most remunerative organizations. The United States Independent Telephone Association includes very few companies of this sort. The mission of the Independent companies, as the record shows, has been to bring telephony to the rural areas and smaller towns and cities of our great land. This mission has been accomplished superlatively well; but, few fortunes have been made in the process.

It may be that the Independent telephone industry will be able to maintain its present standards of efficiency for a little while longer by reviewing every possible economy which an alert and aggressive management can effect. However, in the last analysis—and barring revolutionary technological change or a complete collapse of prevailing costs—rate-relief will be necessary to maintain and improve standards.

Adequate rates in the telephone industry are those which enable a company to give efficient service to its customers, pay fair wages to its employees, and attract new capital needed for expansion and improvement of its facilities. The record of the Independent telephone companies is such as to merit favorable consideration of their appeal for adequate rates by the commissions that regulate them.—(*Abstract of paper presented before the* 1948 *Executives' Conference of the United States Independent Telephone Association.*)

There May Be Treasure in the Attic Trunk

Sometimes it's easy to overlook valuable revenue sources . . . and that's especially true in selling directory advertising. The prospect who wouldn't buy last year may be ready, willing and able to buy now. That's why the Loomis program is based on consistent, continuous sales effort . . . the kind of selling that creates new business . . . new advertisers . . . new profits.

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Spoken words by wire? Amazing! That's how people felt when the telephone was young.

This strange invention grew and grew ... but never so fast as now!

In 1882, when Western Electric joined the Bell System, there were less than one hundred thousand Bell telephones and few cities were interconnected. Today there are 29 million interconnecting Bell telephones—carrying more than 166 million calls a day.

Western Electric has supplied most of the equipment for this tremendous growth. In all, Western Electric has made 50 million Bell telephones — over 10 million since the war.

Think, too, of all the complex equipment in more than 7,700 central offices—the more than 112 million miles of wire in Bell System circuits—the endless quantities and varieties of other equipment and supplies needed for your service—nearly all manufactured or purchased by Western Electric.

Schedules for production of telephone apparatus and installation of central office equipment in 1948 call for continuing record-breaking performance to help in meeting the nation's unprecedented demands for service.

By doing this huge job efficiently and economically, Western Electric helps to make your Bell telephone service the world's best at the lowest possible cost.

MANUFACTURER... of 43,000 varieties of telephone apparatus.

PURCHASER... of supplies of all kinds for telephone companies.

DISTRIBUTOR... of telephone apparatus and supplies.

INSTALLER... of telephone central office equipment.

Western Electric

A UNIT OF THE BELL SYSTEM SINCE 1882

Changing Concepts of Valuation

(*Continued from page* 32)

from the original or book cost of the property, is neither the "easy" way, nor by any reasonable calculation the correct way, to arrive at such fair value. After all, rates are fixed for the future, not the past. Certainly, in periods of rising prices such as we are now experiencing, and in view of the probability that prices will level off on a higher plane than in the past, present day costs must be given great weight in determining values of utilities properties for rate making purposes *for the immediate future.*

"Present day costs must be given great weight in determining values of untilities' properties for rate making purposes."

SIMILARLY, THE thinking of courts and commissions must be adjusted to the fact that present day practice of providing for annual depreciation by applying a rate against the original cost, will not promote the solvency of today's utilities. That method was undoubtedly sound during the period of stable prices before the recent war.

With constantly rising prices, it is probable that many utility companies now have wholly inadequate depreciation reserves to provide (*at present prices*) for replacement of property worn out in the service of the public. To provide adequate reserves for the future, utilities must be permitted to charge against operating expenses what has heretofore been considered a fair rate for depreciation, applied to present day reproduction cost or in the alternative, the rate, if applied to original cost, must be substantially increased.

In the event of rapidly falling prices for utility equipment in the future, resulting from an unlikely depression, do not be surprised if some over-zealous commission *then* enters an order requiring utilities to apply annual depreciation rates against *then* reproduction cost, and also determines value for rate making purposes, *only* upon reproduction cost, eliminating original cost from consideration.

Progressive commissions, as above noted, in determining values for rate making purposes, have rejected the theory that cost less the depreciation reserve can be considered as an element in the process of rate making, and are considering various other elements, including original cost undepreciated and reproduction cost new depreciated, with additions for cash working capital, materials and supplies and going concern value.

It is regrettable that many of the Independent telephone companies, *particularly the smaller ones, hesitate to ask for a value upon their properties which is fair and reasonable and hesitate to ask for a fair return upon such value.* Unless they change their attitude in this respect in presenting cases to the commissions, only *they* will be primarily to blame for a continuance of the rash of inadequate (to say the least) rate making theories now followed by some public utilities commissions which will, as an end result, make it impossible for telephone companies in the United States to give that type of service demanded by the public.—(*Abstract of paper presented before the* 1948 *Executives' Conference of the United States Independent Telephone Association.*)

STROMBERG-C

crapo high-tensile line wire

Reduces Over-all Costs

A net saving of 10 to 15 or more pole structures per mile is possible where *Crapo* High-Tensile Telephone Line Wire is used in long-span construction. Fewer pole structures mean substantial savings in time, labor and material, and in maintenance.

Crapo HTL-135 makes possible spans of 350 feet in heavy, 450 feet in medium, and 500 feet in light loading areas. Its practical economy should be considered for new extensions and where old lines are to be replaced.

Crapo HTL-85 (No. 12 B. W. G.) permits spans of 225 feet in heavy, 325 feet in medium, and 375 feet in light loading districts; provides stronger spans on existing pole structures. Both wires possess superior telephonic transmission qualities.

Write for Manual of Engineering Data and Construction Practices for *Crapo* High-Tensile Telephone Line Wire!

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for durability

manufactured by Colfax Lumber & Creosoting Co., Inc.

DIAMOND C POLES

For the greatest durability in poles, use COLFAX Creosoted Yellow Pine Poles.

The poles are treated full length under pressure with the finest and cleanest obtainable grade No. 1 Creosote Oil, a pure distillate of coal tar, in accordance with AWPA standards.

Each pole, after being carefully graded according to the physical specifications, is treated with eight pounds of creosote, or more if the customer desires.

COLFAX Creosoted Yellow Pine Poles will assure you the lowest annual pole cost obtainable.

For durability, use

DIAMOND

Creosoted Yellow Pine Poles

reversible • weatherproof

reliable "RU" cable terminal

The results of Reliable's policy of endless research and testing of parts and materials, together with a rugged design simplicity are apparent in this Reversible, Unprotected Terminal.

The flat fanning face plate, in combination with a sturdy zinc cover which surrounds the wires both front and back, creates an unusually weatherproof terminal.

The reversible sliding zinc cover also permits stub to be mounted at either top or bottom.

Such other features as: detachable mounting bracket; cast cable chamber; guide rings for jumpers; beveled washers; perfect sealing nozzle, etc. add greatly to the installation and service convenience of the Reliable "RU" Terminal, as well as providing an assurance of service life beyond actual field requirements. Ask for complete information in sizes and prices.

"Reliable" identifies the quality

Model 1200 B
Single Phase
24 Amps.
50 Volts

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BULLETIN

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We supply full-length, pressure-treated poles and Douglas fir crossarms. The high, rigid standards these materials have to meet are your assurance of outstanding strength, endurance, and uniformity — adding up to *long service.*

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Insulators, wire, strand, hardware, and tools — all made by leading manufacturers — are distributed by Graybar, the single, convenient source of *everything* for pole-line construction and maintenance. Your local Graybar Representative is anxious to show how our service can simplify your pole-line work. Why not call him today? *Graybar Electric Company. Executive offices: Graybar Building, New York 17, N. Y.* 4848

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Coordinated Construction

(*Concluded from page* 38)

requirements are concerned it cannot be effective unless there is close coordination with the supplier and manufacturer of equipment and material.

It behooves the operating division of our industry to keep the suppliers and manufacturers reasonably well acquainted as to their long range program. This does not mean that firm orders must be placed with the suppliers years in advance but if we do inform them as to our plans and any changes in such plans they can keep a finger on the pulse of our demands and coordinate their production accordingly.

In setting up the construction program let's not permit the present demand for service and the knowledge of the work which must be done to achieve the objective set lead us astray. An analysis of the manpower and material requirements necessary to carry out the program planned may reveal that it cannot be performed during the time alloted.

Survey the available manpower and determine just how much work can be performed by the various classifications of the present plant personnel. Then give consideration to the use of contract labor by having the manufacturer install the equipment, by having some contractor perform the outside plant work and the manpower that can be saved by the use of labor-saving tools and equipment. After such an analysis it may be found that there is not sufficient manpower available to carry out the program.

If such is the case, then there are the two alternatives of either increasing the manpower or reducing the plant construction program. Considering that skilled manpower should be used, that a skilled workman is not made overnight and that even the best designed training program requires the services of skilled supervisors who will be taken from their supervisory jobs during such a training program it may be advisable to reduce the size of the construction program.

Under present day conditions it is practically mandatory that the construction program be planned at least

three years in advance. This planning of the program permits an orderly coordination of the efforts of all departments of the company.

Under such a three-year program the projects to be done in the second year would be shown in more detail than those in the third year.

The program for the current year should show by months the total expenditures under each project, the new money and the manpower required. Major items of salvaged plant which is re-usable should be itemized. Supplemental information such as the estimated amount of net addition to plant, maintenance expenditure, charges to depreciation reserve and increase in annual income will provide management with a preview of plant operations for the year.

For major projects it may be advisable to set up a schedule which will aid in coordinating the construction program. A sample suggested schedule is shown in Table I.

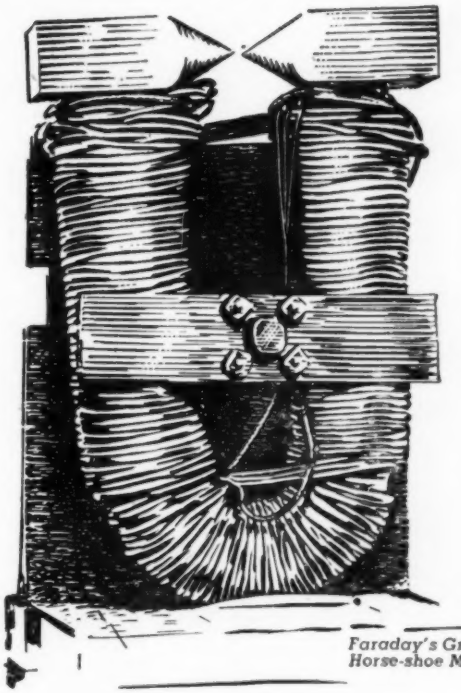
Check Shipping Schedules With the Supplier

IN PREPARING such a schedule it is first necessary to check with the equipment manufacturer or supplier as to the approximate shipping schedule of the major items of material and equipment. After the longest schedule has been determined then add to that your estimate of the time required to prepare the engineering data and to perform the installation. This total estimated time will then indicate how far this project must be planned in advance of the date it is required.

After such is determined then the work in each of the major plant classifications may be considered in a like manner and a tentative schedule of when orders should be placed, contracts let, money required and the various classes of plant personnel will be needed can be determined.

In closing let me reiterate that in my opinion in order to carry out a coordinated construction program it is first necessary to determine the objective we desire to achieve, second, when how and where we will secure the manpower, equipment, material and money to achieve the objective and, finally, lay out the method or procedure which will most effectively and efficiently use all of the resources required to attain the objective.—(*Abstract of paper presented before the* 1948 *Executives' Conference of the United States Telephone Association.*)

Electronics began here



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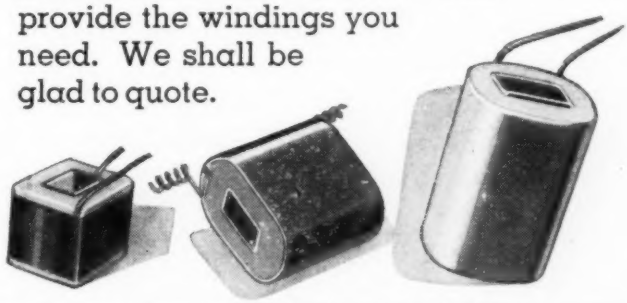
For 30 years Coto-Coil has been winding coils which have helped make practical theories first demonstrated by Faraday 150 years ago. Our modern facilities and "know how" can provide the windings you need. We shall be glad to quote.



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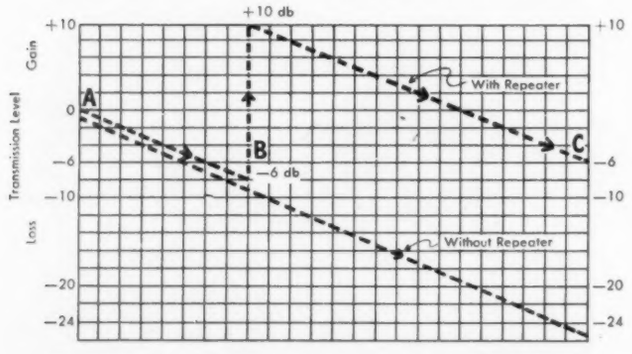
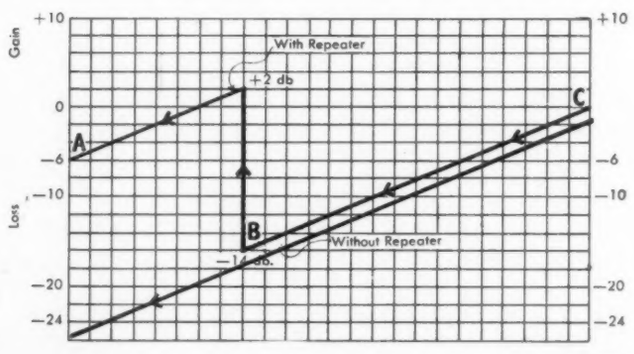
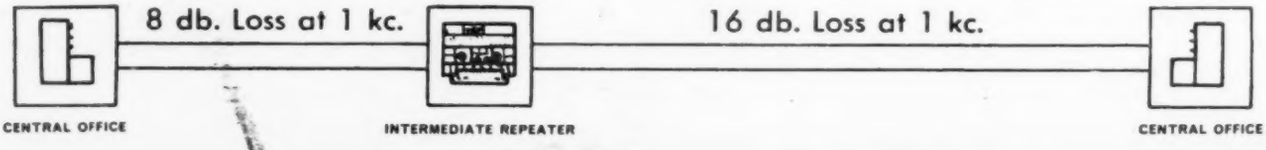
HERE'S HOW THE KELLOGG REPEATER INCREASES TRANSMISSION LEVEL ON TOLL LINE CALLS

WEST-EAST TRANSMISSION

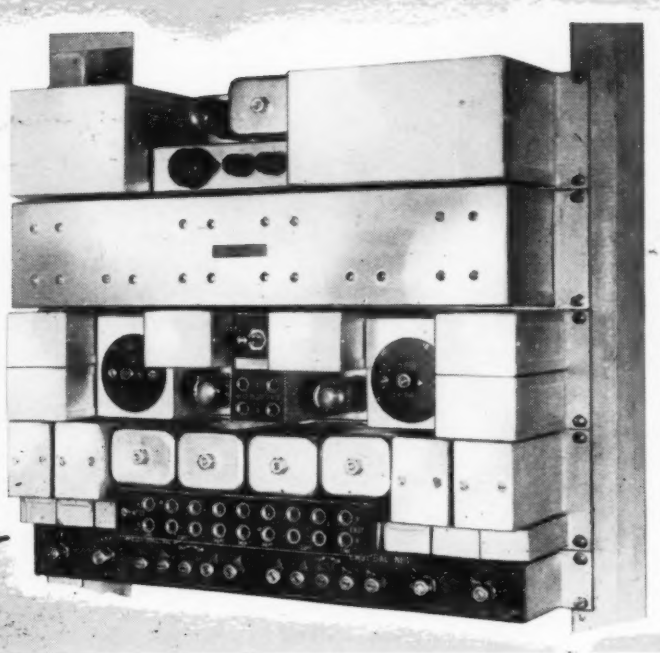


EAST-WEST TRANSMISSION





INTERMEDIATE REPEATER



CENTRAL OFFICE

"You're Clear as a Bell, Bill!"

There's an enthusiastic vote of subscriber satisfaction that pays off in priceless good will! For when you make it a *pleasure* to call "long-distance", you pave the way for increased subscriber use and extra earnings.

Where toll-call service is weak and noisy, many telephone companies find that a *repeater* provides the solution to their problems. It increases transmission level on long-distance calls between exchanges, results in better service, greater subscriber satisfaction!

The Kellogg Repeater is easy to install and simple to maintain. (You don't need tools or soldering irons for adjustments. Accurately-calibrated controls permit quick, easy changes from the equipment side of the unit when line-conditions vary.) It consists of two vacuum tube amplifiers that amplify voice signals in both directions on a two-wire circuit. When used as an intermediate repeater between two central offices, it may be located in one of the offices, or in a weatherproof cabinet along the line. As a terminal repeater it is installed in the central office between the termination of the line and the switchboard.

Improved filter design permits maximum gain, and a quiet telephone circuit. Kellogg Repeaters are assembled and wired on a "unit" basis—which gives greater flexibility to meet your needs. Each unit mounts on a standard 19" relay rack, or in a cabinet.

Call your Kellogg representative or write Kellogg *today*. Let us show you how the Kellogg Repeater can help *you!*

KELLOGG Repeater

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We're living in an age of specialists, today. Take the field of medicine for example . . . one doctor may diagnose, another treat, still another operate. Each is a specialist in his own field. The folks at RUNZEL are specialists, too. Specialists in making cords, wires and cables for the telephone industry. No thousand-and-one items of equipment at Runzel! Just cords, wires and cables—the *finest* cords, wires and cables in the industry.

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KEARNEY
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Kearney Con-nec-tites provide a positive, permanent, solderless, high pressure contact. They give you economical and dependable connections. They are quickly and easily installed. Use them for connecting bridle to arm of open wire, for test points, dead ends, buck arm corners or in test pole connections. Available for all combinations of metallic conductors. Standardize on Kearney Con-nec-tites. For complete information and prices see your jobber — or write

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JAMES R. KEARNEY CORPORATION
4236 CLAYTON AVE. • ST. LOUIS 10, MO.
Overhead and Underground Utility Equipment

"Putting Your House In Order"

(Continued from page 44)

small form suitable for carrying in the employee's purse or pocket, which gave the rates for the various classes of telephone service.

These were provided so that employees would have the information with them as they went about their business and social activities. The rates on these forms were shown with and without the federal excise tax, and were so arranged that the old rate, including tax, appeared beside the new rate without tax, showing very clearly that if the federal tax was removed the increase would be negligible.

We had several hundred copies of our rate increase application prepared, which, incidentally, was very comprehensive. It consisted of 17 legal sized pages and covered very thoroughly the reasons for our need for additional revenue. We sent several copies of this application to each of our managers, with instructions to visit with key business men, professional men and farm leaders in each community and review the application with them, telling them why we needed more money and what the proposed rates would be for their exchange, and to leave a copy of the application with them.

We did not overlook our stockholders, who, of course, are vitally interested in the financial stability of the company in which they have an investment. We prepared a folder, explaining our need for additional revenue, and sent it to them with their quarterly dividend checks. A bill insert, which included a summary of the revenue and expense information we were stressing in all of our other advertising, went to each subscriber.

In addition to the employee information manual, we endeavored to further acquaint the employees with the facts about our rate application through employee meetings held by our managers and informational articles in our employee magazine, *The Lincoln Telephone News*.

Contact With Regulatory Body

BEFORE AND AFTER filing our application we had several visits with our State Railway Commissioners, as the regulatory body is called in our state. We also had confer-

ences with their accounting and engineering staff personnel. In these visits we told them of our complete problems and of our plans for meeting the problems. If you do not already know the members of your regulatory body and their staff, I suggest that you get acquainted with them. I'm sure you will find them to be men of the highest type who are interested in knowing more about your business in order that they can do their job better. I know I need not caution you that in all of your contacts with your commissioners, both informally and formally, you must always be entirely honest and straightforward.

You will recognize that many of the things I have recommended to be done when applying for a state adjustment cannot be accomplished over night. If it is necessary for you to apply for a rate adjustment soon, and I urge you not to delay if its needed, it may be that some of the procedures which I have outlined will of necessity need to be eliminated. However, if you can, I feel each step is important and should be included in your program if at all possible.

It may seem to you that many of the suggestions I have made involve useless activity and that your public relations are such as to obviate the need for special preparations. This may be true but we caution you to be certain that your planned preparations are not "too little and too late."—(*Paper presented before the* 1948 *Executives' Conference of the United States Independent Telephone Association.*)

◆

R. C. Ross Named General Traffic Supt.

The Illinois Telephone Company recently announced that Richard C. Ross has been assigned to the Bloomington office as general traffic superintendent for the company's 42 exchanges. In his new position, Mr. Ross will have the responsibiltiy of supervising the exchange traffic operating forces of the company.

Mr. Ross was originally with the Illinois Telephone Company as Commercial Manager in Bloomington, prior to 1941. As of that date he went with the Ohio Consolidated Telephone Company at Portsmouth, Ohio, in the capacity of commercial and traffic superintendent. Subsequently with that company, Mr. Ross became district manager of the Portsmouth district, serving untill July, 1946, in that capacity. In later 1946 and 1947, he was

(*Please turn to page* 68)

standardize and save . . .

with

utility grade

"Specification"

Amerstrand

Readily Available in These Two "Industry Standard" Sizes:

6M—5/16" diameter, 7 strand. Weight, 225 pounds per 1,000 feet

10M—3/8" diameter, 7 strand. Weight, 273 pounds per 1,000 feet

Approximately 90 percent of the construction requirements of the Independent Telephone Industry can be met with two standard sizes of Utility ("Specification") Grade Amerstrand. With Utility Grade you get better overhead construction, and reduce overhead maintenance.

Standardize your outside plant to conform with other progressive operating companies. Specify Utility Grade Amerstrand on your next order for strand.

RECOMMENDED AND DISTRIBUTED BY

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OHIO ASSOCIATED TELEPHONE
FEDERAL STEP-BY-STEP

- **Replaces Manual Exchange at Sylvania, Ohio**

- **Trunks into Bell System Offices in Toledo and Holland, and independent exchanges in Blissfield and Whiteford Center**

THE Ohio Associated Telephone Company's new 560-line automatic exchange at Sylvania, Ohio, built and installed by Federal, was cut into service on February 28th. An exceptional feature of this installation is the provision for free direct dial communication between subscribers of the Ohio Associated in Sylvania and subscribers of the Ohio Bell Telephone System in Toledo and Holland. In addition, this exchange trunks into the Michigan Associated Telephone Company, for ticketing calls from Sylvania to Blissfield and neighboring communities—and into the Whiteford Farmers Telephone Company, for ticketing calls to Whiteford Center and Samaria.

The Ohio Associated Telephone Company, with 65,000 subscribers and 800 employees, operates a wide variety of equipment in its 133 exchanges—magneto, common battery, and step-by-step switching systems, auto-manual systems, and remote control operation of magneto equipment.

The planning and coordination of this new 1000-terminal installation provided an excellent opportunity for close relationship between the interests involved—the Ohio Associated, the Ohio Bell and Federal.

For Ohio Associated, this cut-over was another step of progress and expansion. For Federal, it marked another contribution towards finer telephone service.

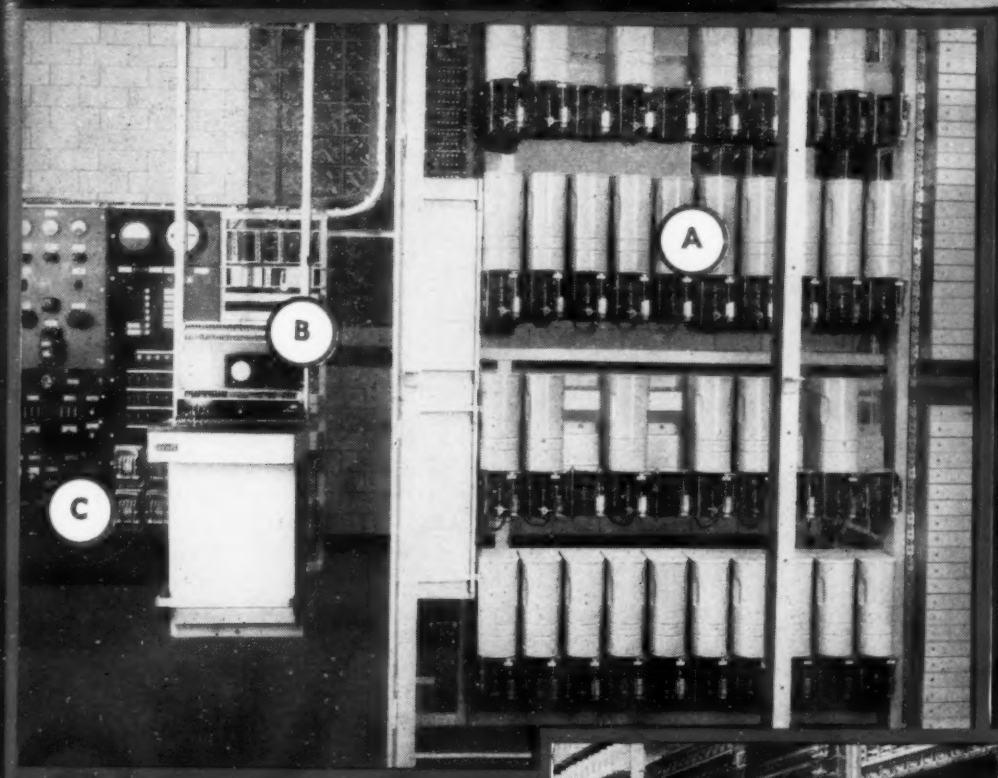
Federal's products, made in one of America's great factories serving the telephone industry, are backed by the experience of I T &T 's world-wide manufacturing and operating organization—with a history of 60 years of achievement in telephone research and engineering.

Federal

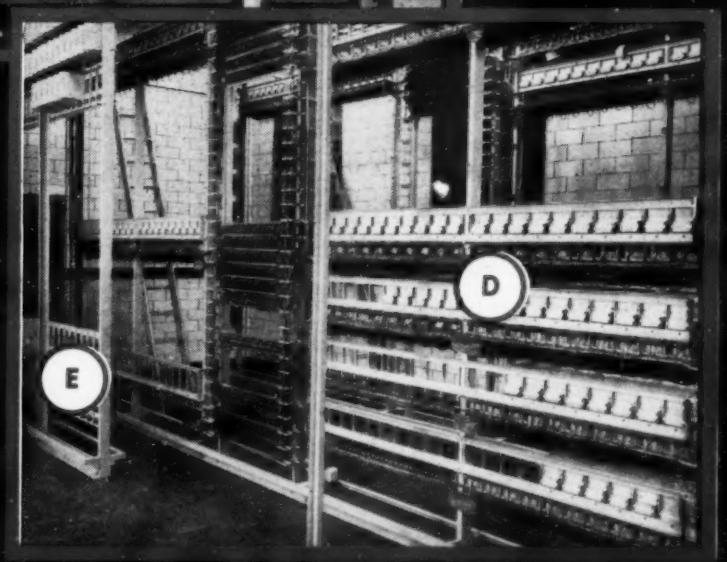
KEEPING FEDERAL YEARS AHEAD... is IT&T's world-wide research and engineering organization, of which the Federal Telecommunication Laboratories, Nutley, N. J., is a unit.

COMPANY INSTALLS EQUIPMENT

⬆ Sylvania exchange building of the Ohio Associated Telephone Company.



⬆ Interior of Sylvania exchange, showing Federal's step-by-step equipment; ➡



- **A** Line finder frame
- **B** Wire chief's test panel, with dial-speed tester
- **C** Power board
- **D** Rear of Selector frame
- **E** Front of repeater frame

Telephone and Radio Corporation

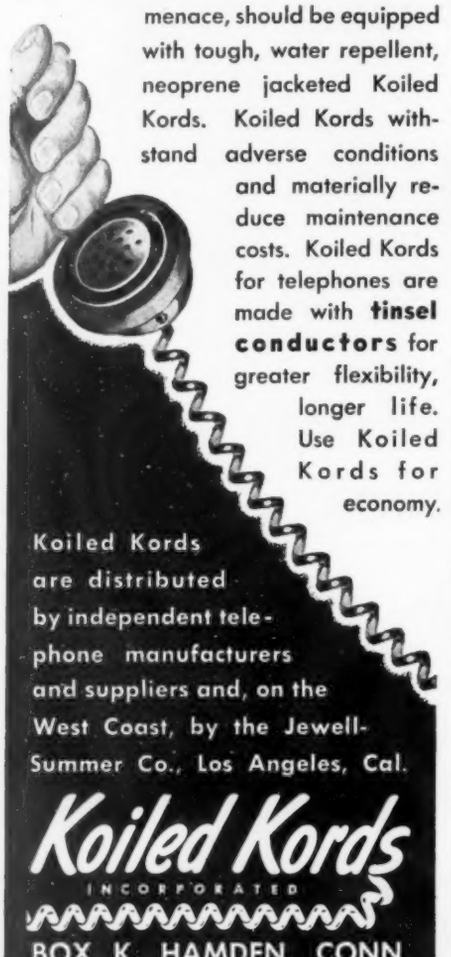
100 KINGSLAND ROAD, CLIFTON, NEW JERSEY

In Canada:—Federal Electric Manufacturing Company, Ltd., Montreal, P. Q.
Export Distributors:—International Standard Electric Corp. 67 Broad St., N. Y.

can hurt

KOILED KORDS

Tropical humidity, steamy plants, sudden rain squalls . . . none of these things can hurt Koiled Kords. Telephones located wherever moisture is a menace, should be equipped with tough, water repellent, neoprene jacketed Koiled Kords. Koiled Kords withstand adverse conditions and materially reduce maintenance costs. Koiled Kords for telephones are made with **tinsel conductors** for greater flexibility, longer life. Use Koiled Kords for economy.



Koiled Kords are distributed by independent telephone manufacturers and suppliers and, on the West Coast, by the Jewell-Summer Co., Los Angeles, Cal.

Koiled Kords
INCORPORATED
BOX K, HAMDEN, CONN.

associated with the G. W. Vandervort company at Portsmouth, Ohio, in an executive capacity. Subsequently he became a member of the board of directors of that concern.

◆

Stromberg-Carlson Advances G. W. Schomaker

G. Warren Schomaker of the Stromberg-Carlson telephone apparatus engineering department has been advanced to the position of telephone salesman and will cover Kentucky, southern Indiana, and western Tennessee, according to T. C. (Tommy) Thompson, Stromberg-Carlson telephone sales manager. Schomaker will report to W. J. Pfaender, manager of telephone sales, Chicago.

A native of Sydney, Australia, Mr. Schomaker attended Scots College and Sydney Technical College before coming to the United States in 1945. He was employed for four years with the Stromberg-Carlson Company Limited of Australia.

Mr. Shoemaker brings to his new position nearly three years' experience in telephone apparatus engineering with the American company. He is a member of the Rochester Chamber of Commerce and the Rochester Civic Music Association.

◆

National Telephone Announces New Nicopress Jumper Sleeves

A new series of Nicopress jumper sleeves and a Nicopress tool, for the jumper splicing of ACSR in sizes 2/0, 3/0, 4/0 and 266,800 CM inclusive, are announced by G. Voyles, sales manager, National Telephone Supply Company. The tool accommodates all four sizes. It is toggle action, hand operated, 35" long, weighing 12 pounds, containing a single groove, and bearing the number 3-1285.

The sleeves are comparatively the same in outside diameter so that only the one tool is required for installation of all four sizes. The manufacturer states that the resulting splices assure a tight bond and high conductivity. They recommend the application of National Zinc Chromate or No-Oxid to the conductor ends before insertion into the jumper sleeves, to assure the continuation of high conductivity.

◆

T. A. Logan Named Vice President Of Automatic Electric Sales

At a recent meeting of the board of directors of Automatic Electric Sales Corporation, domestic distributor for the Automatic group, T. A. Logan was elected vice president. He will continue in charge of the company's Eastern District, with headquarters in New York City.

Since joining Automatic Electric Company in 1927, Mr. Logan has served in a wide variety of technical and sales capacities, both in Chicago and in the field. For two years prior to the war, he was resident sales engineer for the company in Northern Ohio.

In 1941 he was called into the service of the Army Air Forces, participated in the campaigns in Africa, Italy and Corsica, and was advanced to the rank of colonel. On his release from the service, he was appointed assistant general manager of the sales company, and in the fall of 1946 went to New York to take charge of the Eastern District.

◆

Soundscriber Appoints DeNapoli and Lyon

Lincoln Thompson, president of The SoundScriber Corporation, manufacturers of electronic disc dictating equipment, has announced the appointment of A. C. DeNapoli as chief engineer and W. H. Lyon as service manager.

Mr. DeNapoli has been associated, in an engineering capacity, with the recording and business equipment industry since his graduation from the Massachusetts Institute of Technology in 1927. During 12 years with the Western Electric Company in their Electrical Research Products division, he served in a number of engineering capacities and ultimately in the management of one of their important plants manufacturing high quality sound equipment for radio broadcast purposes.

As director of engineering of Films, Inc., he was responsible for the development of a unique automatic talking motion picture system. In addition, DeNapoli has had several years of specific experience as director of research and development with one of the manufacturers of dictating and sound recording equipment. DeNapoli is a member of The National Society of Professional Engineers.

Mr. Lyon assumes his new post as service manager from the former position of service engineer with SoundScriber. During World War II he was associate engineer in charge of development and procurement of sound recording equipment for all naval use ashore and afloat, in the Interior Communications Section of the Bureau of Ships, Navy Department, Washington.

Modern Aerial Cable Construction

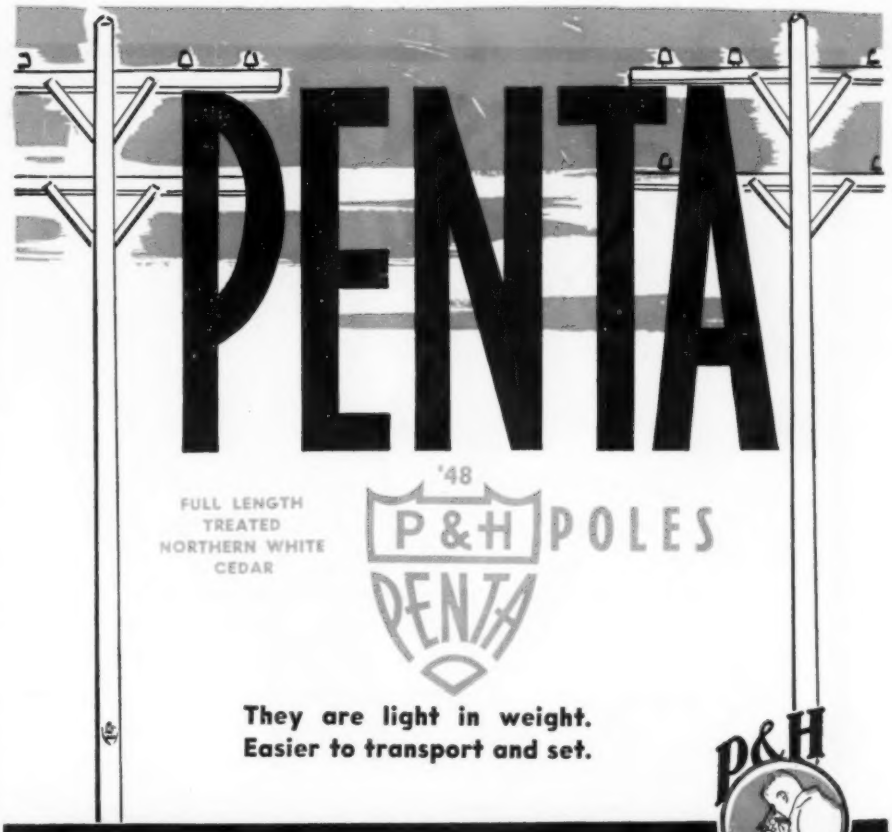
(Concluded from page 49)

tened to the suspension clamps. All bolts and clamps are carefully inspected to insure that no insecure fastenings exist. For cable in rings the suspension clamps are placed with the groove for the strand on the top side of the clamp bolts and the strand is fastened above. For spun cable, however, the clamps are placed with the grooves down and the strand is fastened below the bolts. This permits the cable to be lashed to the strand in better shape as it passes the poles, and eliminates much of the loop that it would otherwise be necessary to leave.

WHEN TWO STRANDS cross they are fastened securely together with a crossover clamp. This is a small two-piece metal clamp with two grooves at right angles made to accommodate the two strands. The clamp is secured with two half inch bolts, one on each side of the crossing. In this connection it is well to mention that these crossovers are often used where the cable run makes a right angle turn. It is frequently not possible to place a pole at the turn and so the strand for each run is extended to a point where proper anchorage can be obtained. The two strands are then connected with one of the crossover clamps and the cable turned at the point of intersection.

It is sometimes necessary to dead end short sections of strand to buildings. Wall straps are used for this purpose. There are two types of these straps, one for strand pulling in a direction parallel to the side of a building and the other for strand pulling at right angles. These straps are fastened to the building by either lag screws or bolts. The attachment should, of course, be as substantial as possible. In no case should a strand so fastened be ridden until its strength has been fully tested. A common test for this purpose is to support the weight of two men by a rope thrown over the strand in the center of the dead end span. If their weight is supported without incident it may be considered safe for one man to ride the strand.

(To be continued in your June issue of *TELEPHONE ENGINEER AND MANAGEMENT.*)



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MINNEAPOLIS, MINNESOTA · 50 CHURCH STREET, NEW YORK, N. Y. "STILL IN THE LEAD"

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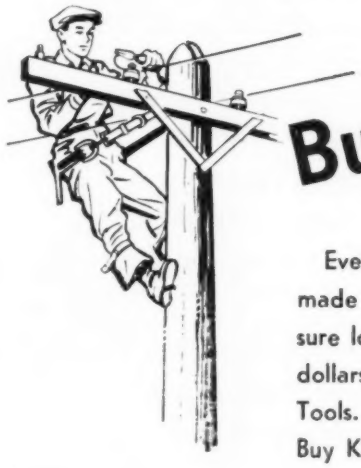
MEN WHO KNOW TOOLS



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Every item in the "Klein Line" is made from top-quality material to insure long, hard service. That's why your dollars go farther when you buy Klein Tools. Take a tip from men who know. Buy Klein.

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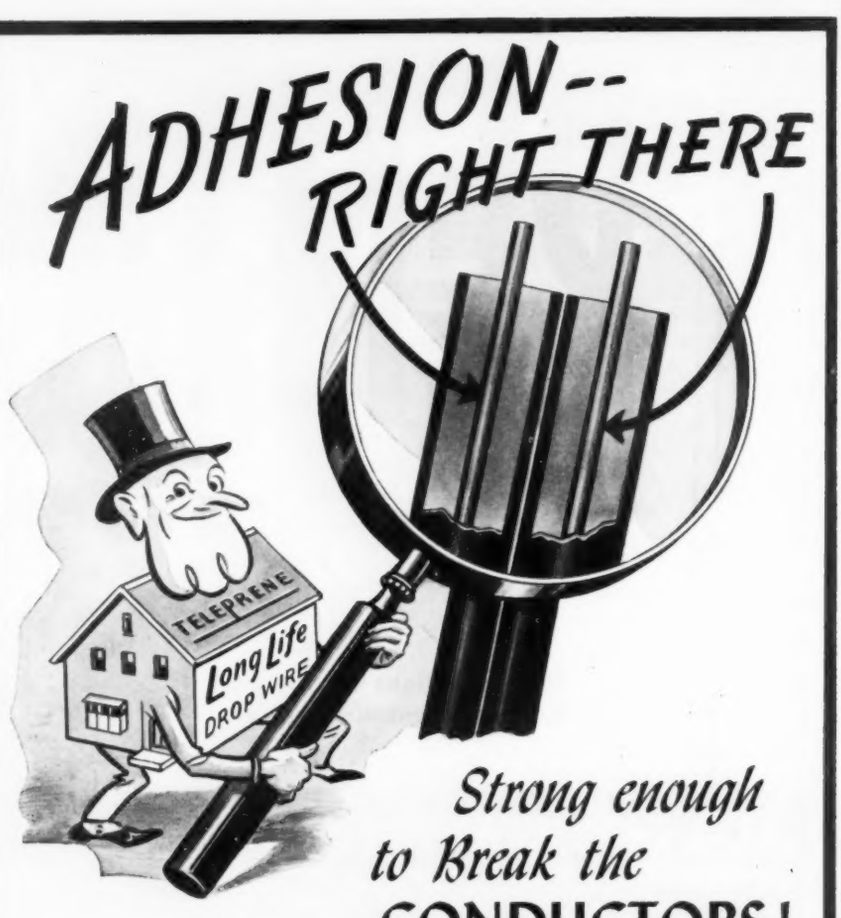

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TELEPRENE with TELEPLATED conductors gives enduring adhesion between conductors and rubber insulation. This places the weight of the drop or distribution wires on the conductors where it should be, not on the insulation.

ALL WHITNEY BLAKE OUTSIDE TELEPHONE WIRES ARE TELEPLATED

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The difference in cost is Pennies
The difference in life is Years

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THE WHITNEY BLAKE CO.
New Haven, Conn.
Well Built wires since 1899

Alpha Metals, Inc., Advances M. A. Boyle to Sales Manager

M. A. Boyle has been appointed sales manager of the Solder Division of Alpha Metals, Inc., Brooklyn, N. Y. Mr. Boyle steps up from the post of sales promotion and advertising manager, a position he has held since joining Alpha two years ago. Prior to that he spent four years in the Army Air Forces serving in an administrative capacity in the Asiatic Pacific Theatre. Before entering the army, he was associated with the American Salesbook Co. of Niagara Falls as sales engineer.

As sales manager Mr. Boyle will continue his duties as a traveling consultant to manufacturers. This service is in line with Alpha's policy of assisting manufacturers in solving soldering problems and cousulting with them in the installation and design of labor saving soldering equipment and the development of better soldering techniques.

◆

Copperweld Receives Award For Effective Vet Rehabilitation Program

At a ceremony held in the Glassport, Pa., High School Auditorium on April 8, the Copperweld Steel Comany was presented with the American Legion Award for an effective program of veteran rehabilitation in industry. This award is especially significant since it is the first presentation made to an industry in the Commonwealth of Pennsylvania and is in appreciation of the efforts of Copperweld in putting through a workable program for the returning G.I.'s. Returned veterans of World War II now comprise 42% of Copperweld's personnel.

The award was presented through the Pennsylvania Department of the American Legion.

◆

R. H. Burfeind Rejoins Automatic Electric Sales

Announcement has been made by L. H. Warner, president of Automatic Electric Sales Corporation, that Raymond H. Burfeind, who retired a year ago from that company to become vice president of National Telephone Company, returned to the Automatic Sales organization on April 1, to become assistant to the president.

Mr. Burfeind, whose intimate knowledge of telephone matters and broad acquaintance among Independent operating executives are widely recognized throughout the industry, will

represent the company at telephone conventions, and will devote his time in a staff capacity to customer relations matters.

Mr. Burfeind has devoted his entire career to the telephone business, and practically all of it in the interest of the Independent industry. From 1904 until his retirement a year ago, he had been continuously in the employ of Automatic Electric Company or its sales affiliates. During this period, he won recognition not only for his contributions to the commercial development of automatic switching but also for his keen and sympathetic understanding of the problems of operating companies, whether relating to technical, commercial or financial matters.

It is expected that Mr. Burfeind's long experience in the industry, coupled with his thorough knowledge of the requirements of operating companies will prove mutually beneficial to Automatic Electric and its Independent telephone customers.

◆

Leich Appoints L. M. Wells V. P. in Charge of Manufacturing

R. W. Siemund, president of the Leich Electric Company, Chicago, has announced the recent appointment of L. M. Wells as vice-president of manufacturing for the Leich company.

Mr. Wells comes to Leich from the Automatic Electric Company where he

L. M. WELLS

had been general superintendent since 1944. His long experience in the supervision of manufacturing and assembling of dial telephone equipment equips him perfectly for his position, as Leich is now starting in full production on it's new dial switchboard.

Mr. Wells spent several years in the

ALPHADUCT WIRES
FOR All TELEPHONE REQUIREMENTS

LONG LIFE

Neoprene Jacketed
Drop and Bridle Wire

Weatherproof Braided Drop and Bridle
Interior - Tree - Ground - Switchboard -
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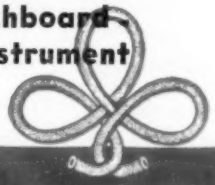

Manufactured and Tested to Rigid Specifications
ALPHADUCT WIRE & CABLE CO.
Milltown, New Jersey Telephone: Milltown 8-0030

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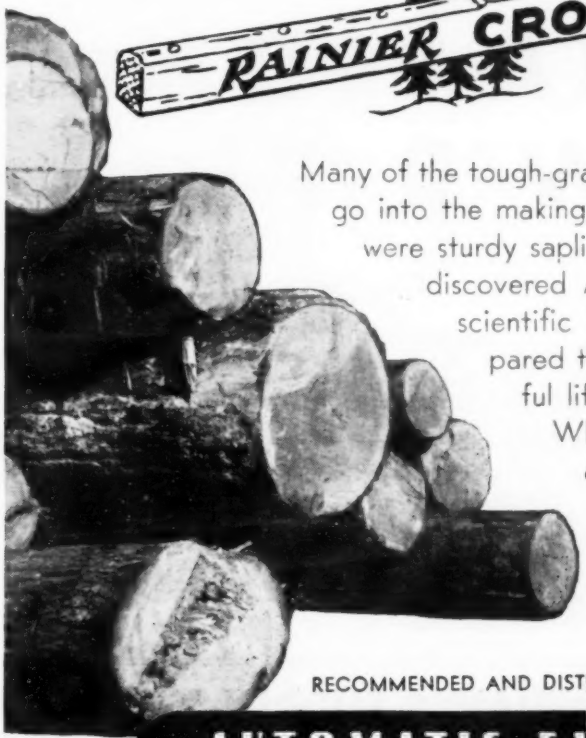
RAINIER CROSSARMS
FOR YOU!



Many of the tough-grained Douglas firs that go into the making of Rainier Crossarms were sturdy saplings before Columbus discovered America. Nature and scientific kiln-drying have prepared them for years of useful life on your pole lines. When you order crossarms, specify Rainier Crossarms made by

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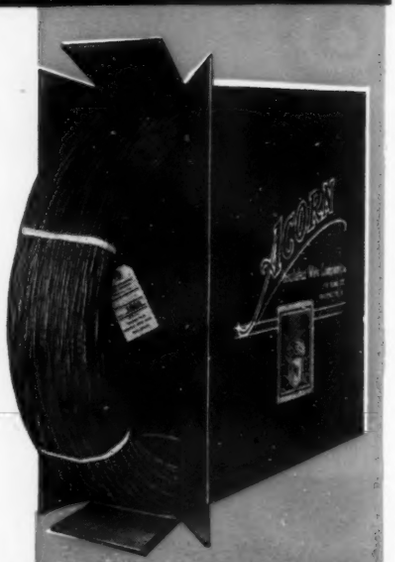
ACORN INSULATED WIRE

Quality WIRE

for Every
Telephone NEED



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POW'R PULL is fast and dependable for many every day jobs . . . stretching wire, fencing, lashing telephone poles to truck or trailer . . . loading or unloading heavy cases, cable reels, etc. Tested to full 50% overload and weighing much less than other pullers and hoists.

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TELEPHONE REPAIR & SUPPLY COMPANY

DAN'L H. McNULTY, President and Manager

1760 Lunt Avenue Chicago 26, Illinois

power field before he started in the installation department of the Automatic Electric Company. In 1919 he was made foreman of the final inspection and testing department. After four years of staff engineering in developing testing equipment Mr. Wells was, in 1925, made superintendent of inspection in charge of quality control of all materials and equipment.

In 1935 Mr. Wells was made factory superintendent of the Automatic Electric Company and steadily assumed extra responsibilities until in 1944 he was appointed general superintendent. In this capacity he was in charge of all manufacturing, production planning, scheduling, methods, testing, installation, engineering, etc.

At Leich, Mr. Wells will have charge of all fabrication, assembly, inspection, production control, production engineering, and purchasing.

◆

Federal Switching System Installed in Sylvania, Ohio

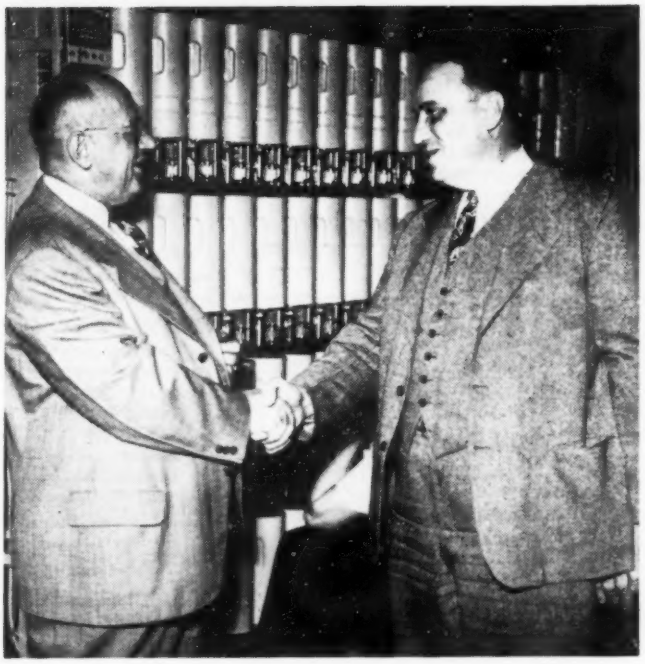
Installation of the first Step-by-Step automatic telephone switching system manufactured by Federal Telephone & Radio Corporation, Clifton, N. J., associate of International Telephone & Telegraph Corporation, for service in the United States, was completed when the new 560-line Sylvania, Ohio, exchange of the Ohio Associated Telephone Company was cutover recently.

Although Federal and other I. T. & T. manufacturing companies have been producing Step-by-Step telephone equipment for many years, for telephone operating companies throughout the world, the Sylvania installation is the first complete Step-by-Step system manufactured by Federal for an American Independent telephone company.

One of the exceptional features of this cutover, representing full conversion from manually operated to automatic equipment, is that it provides subscribers in Sylvania, a suburb of Toledo, direct, toll-free dial connections with the telephones of the Ohio Bell System serving both the Toledo and near-by Holland exchanges. The new exchange also trunks into the Michigan Associated Telephone Company for ticketing calls from Sylvania to Blissfield and neighboring communities—and into the Whiteford Farmers Telephone Company for ticketing calls to Whiteford Center and Samaria.

Directing the cutover of the Sylvania Exchange, representing Ohio Associated, were Clarence E. Jones, vice-president and chief engineer; Clare Williams, vice-president and general manager, and F. D. Reese, assistant chief engineer. Federal representatives

Officials at the cutover of the new 560-line Sylvania, Ohio, step-by-step automatic telephone switching system, first complete system to be manufactured by Federal and installed in the United States. Left to right: L. J. Denney, director of Federal's telephone division; C. E. Jones, vice president and chief engineer of Ohio Associated Telephone Company and Ohio Associated's vice president and general manager, Clare Williams.



C. E. Jones, vice president and chief engineer (left) of the Ohio Associated Telephone Company, being congratulated by Benjamin Schlatter, chairman of the Sylvania Boosters Club, on the cutover of the Sylvania exchange to Federal's step-by-step automatic telephone switching system.

present at the cutover included L. J. Denny, Director of telephone division. R. W. Engsberg, telephone chief Engineer, I. W. Gleason, telephone sales manager; H. L. Horwitz, equipment engineer, and L. P. Laing of step-by-step inspection department. The installation was made under the direction of J. B. Foster, federal's chief installer.

The Ohio Associated Telephone Company, one of the largest Independent telephone operating companies in that state, has 65,309 subscribers and approximately 800 employees. In its 133 exchanges throughout the state, the company operates a wide variety of telephone equipment, including magneto, common battery, step-by-step switching systems, auto manual systems and remote control operation of magneto equipment.

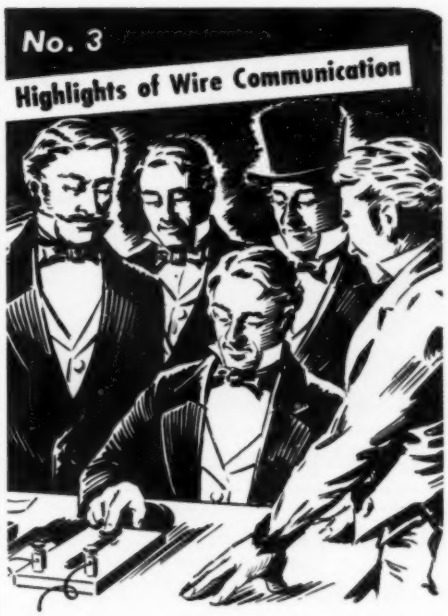
Since 1935, when it served but 280 telephones, the Sylvania exchange has shown consistent and rapid growth. Nine years after the initial installation the number increased to 800 and today the company reports a demand for more than 1500 telephones. This progress is attributed to Sylvania's steadily increasing population as a desirable residential suburb of Toledo.

◆

A. L. Funke Joins Barco Mfg. Company

A. L. Funke, well known member of the Independent telephone industry, has joined the Barco Manufacturing Company, 1801 Winnemac Avenue, Chicago, Illinois. Since February, 1934, Mr. Funke has been associated with the Automatic Electric Company. He

(*Please turn to page* 76)



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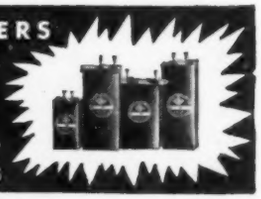

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AVAILABLE—About June 1, 1948—Four complete central offices North Electric Company automanual all-relay and switch type equipment. Total 1090 lines. Also, automanual key set positions and North Electric Company switch type trunk equipment.

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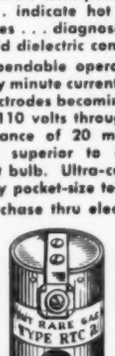
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for harmonic or coded bells. Improves both ringing and transmission on party lines. Can be installed in a minute. NO MOVING PARTS. Fully Guaranteed.
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A. L. FUNKE

was originally employed as assistant secretary and was advanced to secretary, general auditor, treasurer and assistant general manager. On October 1, 1945 he became assistant to Frank S. Spring, president of Telephone Bond & Share Company.

The Barco Manufacturing Company is widely known to the communications industry as the manufacturer of construction equipment and supplies.

◆

C. H. Reese Transfers to Kellogg's Swb'd Sales Dept.

C. H. Reese, formerly Illinois sales representative for Kellogg Switchboard & Supply Company, Chicago, has recently transferred to the company's switchboard sales department, according to F. M. Parsons, sales manager. L. B. Pitcher replaces Reese in the Illinois territory.

C. H. REESE joins Kellogg Switchboard sales department.

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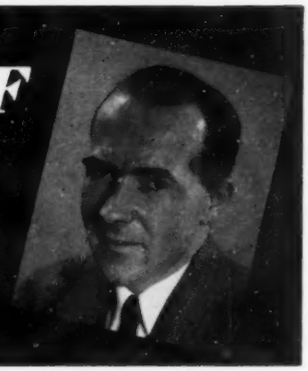

By JOHN G. REYNOLDS
Managing Editor

Sound Familiar? . . . Sample of calls an operator must contend with and yet terminate the usual polite "Thank you," is described in recent issue of the Bozeman (Mont.) Courier. Paper said typical call that taxed operators' patience involved the subscriber who said: "Hello, central?? I want to get hold of Joe Doakes. Sure you know him. He lives at Jepp's crossing in the red house just across from the Smith's. Sure you know him, he's been there for years . . . Kinda bald headed fellow . . . No, I don't know his number . . . Yep, I'll look it up . . . 233-W, that's it . . . Where? . . Oh, Two Dot . . . I'll have to wait? How long? Can't you get him now? I know that he is at home. . . . ."

Conversation picked up by the Montana paper should have familiar sound to many traffic department employees who are daily endeavoring to handle rushing business in a style that is not plain service but service with a "please" and a "thank you."

• • •

Case Of The "Holeless Directory." . . . Residents of Charlotte, North Carolina, recently were puzzled over the absence of the familiar hole and string that they always found in the upper left hand corner of their telephone directory. When the new directory showed up solid as a rock, subscribers called the commercial office of Southern Bell to ask "What happened to the string?" It took some lengthy explanations before subscribers agreed that the directory had grown right along with Charlotte until it was too heavy to be hanging from a string. Charlotte citizens are now reconciled to fact that town has now become metropolitan center and only small towns need holes in the telephone directory. After all, commented an old timer—"Who knows but what the book would probably pull the nails loose from the walls, or gape open under the strain, or become so dog-eared that people might even scorn it?"

• • •

Company President Climbs Poles At 73. . . . In our own "Hats Off Department," we'll doff our top piece this month to E. Scott Rose, 73-year-old president of the Middleburg (N. Y.) Telephone Company. A telephone line strung many years ago between a dairy farm and a creamery gave Mr. Rose his start in the communication business, and today Mr. Rose is described by his home town paper as "probably the only telephone company president in the world who still takes his turn at climbing poles."

• • •

Police Learn Of Phone Oddities. . . . Los Angeles County Peace Officers Association learned many facts about telephones during a recent meeting. Among various oddities were the following: Illegal use of slugs in Southern California's 33,000 pay stations cost the telephone company $4,000 in March; stuffers who plug coin return slots to collect "wrong number" money often make $5 a day from 10 pay stations—and often make the City jail too: a key grabber has been devised to mechanically snatch away keys used in the quarter slot relay and enable a caller to use the same coin to record high long distance tolls; pennies are covered with salt and thinned down to jump the nickel relays—but penny-jumpers who save four cents on a telephone call have been sentenced to 30 days in jail.

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Durability

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Modern Design

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Originators of "ALL-RELAY" Systems of Automatic Switching